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the OIL AND GAS JOURNAL

DECEMBER 1
1938

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Hughes Rock Bits Are "Tailor-Made" for Specific Ranges of Formations.

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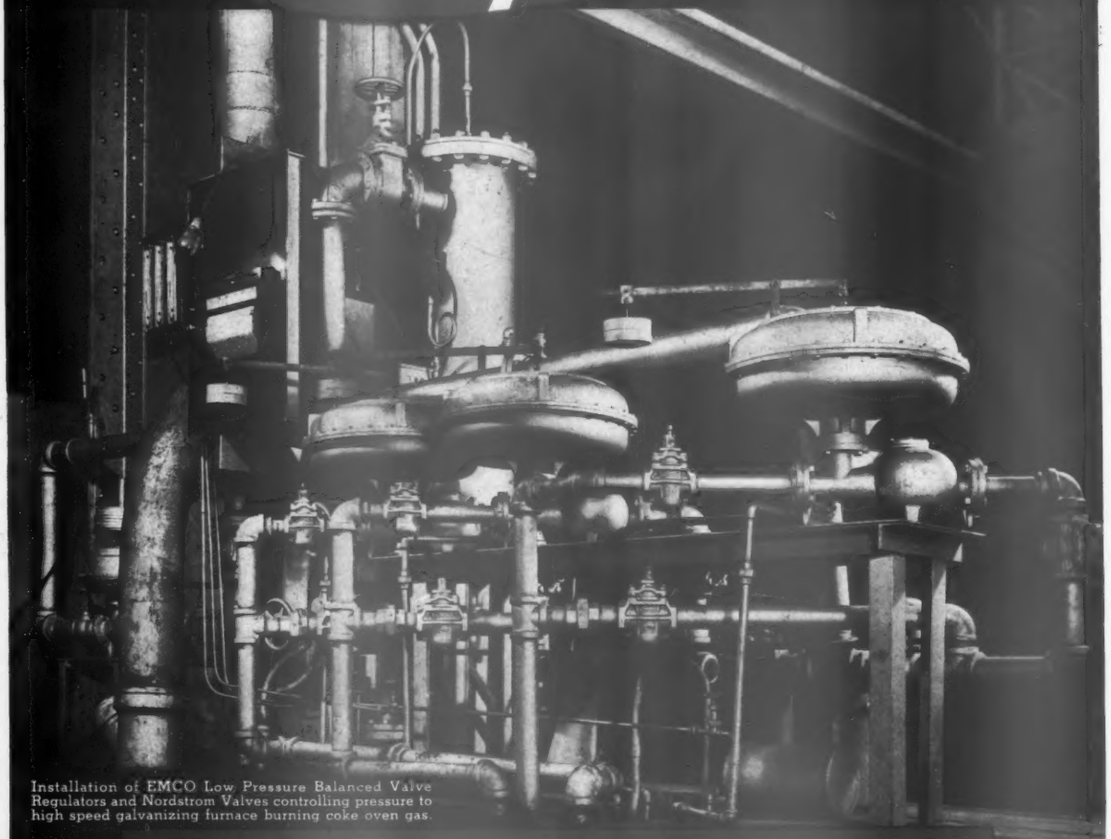

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The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

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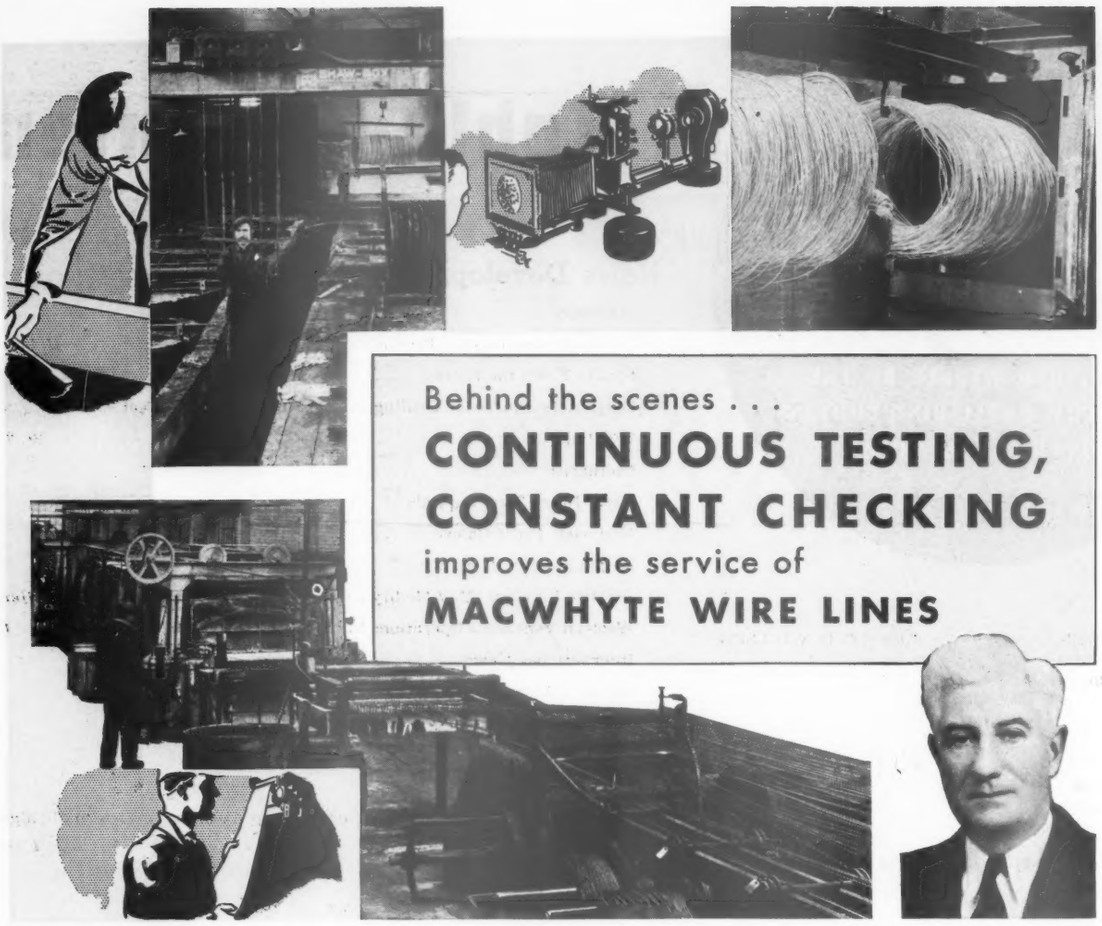

Behind the scenes . . .

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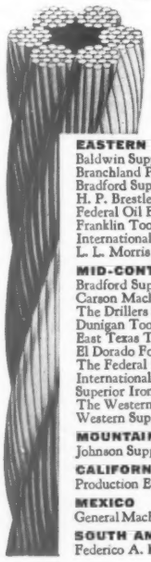

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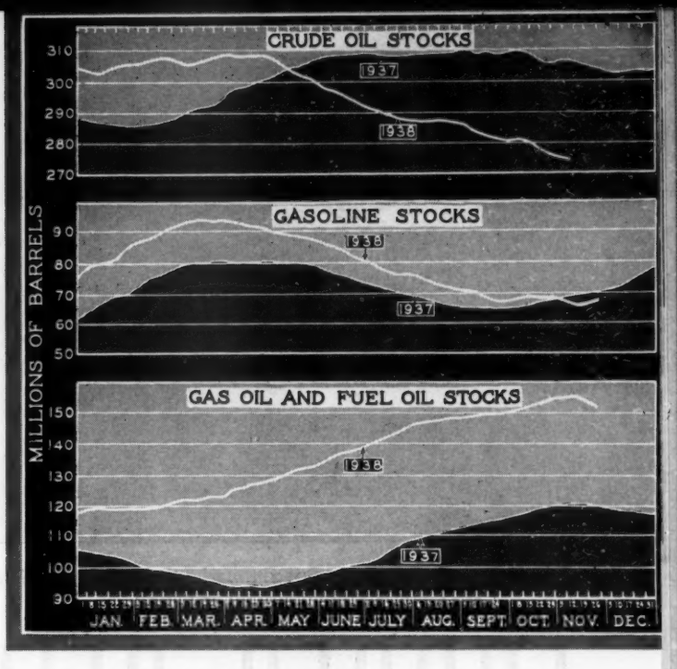
Trends

December Allowables Are on a Conservative Basis; Texas Shut-downs Go On



CALIFORNIA, one of the oldest producing states in the Union, after over 75 years of exploration and development, comes in this week with a well the potential production of which is rated as high as 60,000 barrels a day of high-gravity oil, if permitted to flow openly. The well, in the Coalinga district, in Fresno County, is producing through a quarter-inch choke at the rate of 15,000 barrels per day. It is too early to safely comment on the future of this well, but based on its flush performance, it is the largest high-grade oil producer California has ever had, and as it has at least 506 feet of oil sand from 6,964 feet downward, it starts off as one of the country's greatest producers.

CRUDE PRODUCTION *3,267,994 barrels daily average — up 1,401. One year ago 3,426,180 barrels.*

CRUDE STOCKS *273,394,000 barrels as of November 12—down 1,823,000. One year ago 305,608,000 barrels.*

GASOLINE STOCKS *68,628,000 barrels as of November 26 — up 1,004,000. One year ago 70,283,000 barrels.*

GAS AND FUEL OIL STOCKS *153,634,000 barrels as of November 26—down 337,000. One year ago 120,104,000 barrels.*

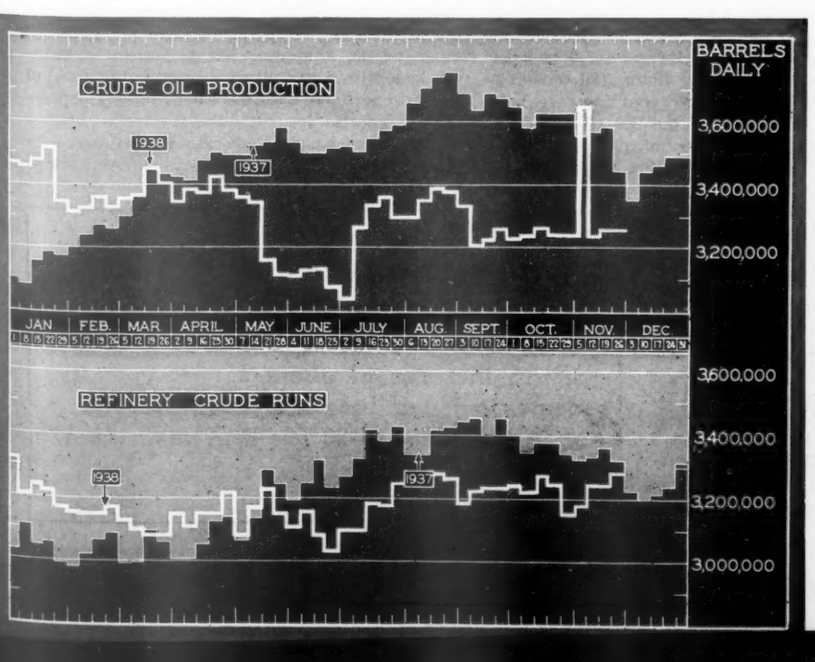
REFINERY RUNS *3,295,000 barrels daily week ending November 26—up 65,000. One year ago 3,325,000 barrels.*

Conservation authorities in Texas, Oklahoma, New Mexico and Louisiana had all fixed the allowable production in December of the various states named when this was written, and Kansas was expected to be heard from at any time. All the allowables are conservative and the Texas Railroad Commission helped the situation greatly by continuing the shutdown of fields on four Saturdays and four Sundays of the month.

Oklahoma will be held to 428,000 barrels per day; Texas gross allowable will be 1,710,082 barrels per day, but with four Saturday- and four Sunday-shutdowns, the gross is reduced to a net of 1,294,577 barrels per day which is considerably below the Bureau of Mines estimate of demand. Louisiana is increased to 247,580 barrels and New Mexico reduced to 98,285 barrels per day including 3,000 barrels per day for export.

A minor East Texas pipe line cut the price of crude in that field to 75 cents per barrel, affecting about 3,450 barrels of oil per day, or less than 1 per cent of the current production of the field.

Notwithstanding the persistence of prices in various divisions of the refinery market which make profitable operations impossible, feeling in the trade was somewhat more cheerful this week. Just what remedy will be applied in the hope of correcting present ruinous conditions is a matter of debate, but the statistical situation is much better than it was at this time last year and there is a growing belief that shadows which now darken the refining division of the oil industry will be removed. Gasoline consumption continues at a high level, the post-Thanksgiving decline having been less than many expected. Stocks are in better balance with prospective requirements than they were in the fall of 1937. Observers point out that advances made in both the engineering of motor vehicles and the manufacture of gasoline tend to increase winter driving. There is a distinctly improved tone in the market for heavy industrial fuels, which is good, because inventories in the interior districts have been extremely burdensome.



DAILY AVERAGE PRODUCTION FOR WEEK

	Nov. 26, 1938	Bur. Mines Nov. est. of demand	Nov. state allowables	Nov. 19, 1938
Oklahoma City	104,375	.....	.....	98,425
Fitts	36,750	.....	.....	38,750
Remainder of state	306,025	.....	.....	310,750
Total Oklahoma	447,150	515,000	428,000	447,925
East Texas	370,763	.....	.....	370,697
West Texas	205,096	.....	.....	203,850
North Central Texas	104,472	.....	.....	105,450
Texas Panhandle	64,143	.....	.....	60,200
East Central Texas	90,770	.....	.....	91,396
Gulf Coast Texas	333,625	.....	.....	333,697
Southwest Texas	98,769	.....	.....	98,000
Total Texas	1,267,640	1,371,000	1,279,653	1,263,290
North Louisiana	70,875	.....	.....	69,850
Gulf Coast Louisiana	187,170	.....	.....	188,098
Total Louisiana	258,045	256,300	235,000	257,948
California	663,900	616,700	610,000	675,250
Kansas	156,000	164,300	163,400	154,125
Arkansas	49,350	52,300	52,000	50,740
Eastern Fields	93,100	98,100	.....	92,500
Illinois	102,247	64,300	.....	86,752
Michigan	51,182	50,300	.....	52,063
New Mexico	108,240	111,000	105,400	108,220
Rocky Mountain area	71,140	92,000	.....	77,780
Total United States	3,267,994	3,391,300	.....	3,266,593

Streamlined train taking on Diesel fuel

LARGER DEMAND NEXT YEAR

By H. Stanley Norman

NEW YORK, Nov. 28.—An increase of 16,000,000 to 26,000,000 bbls. in the domestic demand for motor fuel in 1939 is anticipated by statisticians of the oil industry. The figures cover a range of 3 to 5 per cent increase in the domestic gasoline consumption, predicted largely on the programs of the country's automobile manufacturers.

It now appears probable domestic motor fuel consumption this year will total between 517,000,000 and 518,000,000 bbls., slightly under the high record set in 1937. The sharp increase in motor fuel exports, which through September exceeded those of 1937 by 7,826,000 bbls., will be more than sufficient to offset the slight reduction in domestic consumption. The total motor fuel demand from this country's petroleum refiners for 1938 will be in the vicinity of 563,000,000 bbls. It is the unpredictable export demand for motor fuel that prevents statisticians from making a more accurate forecast of the total gasoline requirements.

Automotive Output

In projecting domestic motor fuel requirements over 1939, heavy reliance is placed on the automobile construction program calling for 3,250,000 to 3,750,000 new vehicles. Based on these figures, it is probable 750,000 to 1,250,000 additional automotive units will be in service at the end of next year. The remaining 2,500,000 of 1939 automobiles will replace cars retired from service. Observers believe the retirement of automotive units will be particularly heavy this year since a greater number of quality used vehicles will become available to drivers in the lower income brackets.

The current business improvement, with greater gains predicted by most of the country's economists, figures prominently in the belief that domestic gasoline consumption will score another gain in 1939. Just a year ago some statisticians failed to foresee the severity of the recession and anticipated an increase of 5.5 to 7.5 per cent in the 1938 domestic motor fuel requirements. Nine months of disappointing business activity, coupled with uninterrupted rain for two or three weeks in many areas during the middle of July, a period of high consumption under normal conditions, is proving estimates made in October, 1937, too optimistic. Later in 1937 predictions were revised downward, but still most observers thought there would be an increase of 2 to 4 per cent in this year's domestic motor fuel consumption. The estimate of 4 per cent increase held through the first quarter, but losses were sustained during the peak consuming season.

There is a bare possibility that November and December motor fuel consumption will be sufficient to bring total 1938 domestic consumption approximately level with that of 518,216,000 bbls. in 1937, but even the most optimistic can foresee no more than a fraction of 1 per cent gain for this year.

Economists point to the stock market as a reasonably reliable barometer of general business conditions and hold that the upward trend during the past several weeks is sufficient indication of improvement to support optimistic predictions for the near and more distant future. Then, too, there is the factor of employment in the automobile industry which has returned more than 100,000 men to the pay rolls within recent weeks. With this number of men returned to gainful employment a corresponding impression will be registered in motor fuel consumption.

Export Estimates

Most statisticians in the petroleum industry believe export demand for motor fuel in 1939 will not equal the shipments of this year. There are no tangible developments to support such forecast of restricted export requirements, but it is difficult to believe the 1938 armament pace and storage of gasoline for military purposes will continue for another 12 months. For that matter, not even the most optimistic anticipated the increase in exports enjoyed in 1938. A year ago most statisticians and observers of petroleum conditions felt exports would be curtailed in 1938, but, so far as crude and motor fuel are concerned, substantial increases are already assured.

To produce an increase of 16,000,000 to 26,000,000 bbls. of motor fuel about 34,000,000 to 59,000,000 bbls. of crude oil will be required. This cannot be accepted by crude oil producers as a yardstick of 1939 requirements, however, because of the uncertainty regarding exports. There is the probability that exports to Japan and China will slump sharply should the military campaign be brought to a close. Even though Japan's military activity is continued, it is likely shipments from this country will be less in 1939. Japan's financial position has been weakened to a dangerous point by the campaign in China. Refiners are disinclined to extend Japan additional credit and the country is already turning to Mexico for a part of its current requirements. This trend may be accented in 1939.

The impression is gaining ground that Great Britain, France, Germany, and Italy will soon have accumulated sufficient military petroleum supplies to take care of emergency requirements. Just as soon as European powers build stocks of motor fuel to a point they feel secure, the demand from these countries is expected to drop to normal domestic requirements. So much secrecy exists about military stocks of petroleum that even high officials of the European powers are ignorant of actual conditions. It is this secrecy that prevents a fair determination of just what portion of current United States petroleum exports go into current consumption. Consequently, no one can analyze the normal requirements of markets ordinarily served by American refiners.

Despite the unpredictable export question it seems almost certain shipments could not possibly decline to a point that would offset the indicated increase in domestic motor fuel consumption. In other words, it appears the petroleum industry can look with confidence for increased demand of some proportions, with the extent largely depending on exports.

One company with operations scattered over the world does not look for any material change

Indications for 1939

A three to five per cent increase in domestic demand for gasoline.

An increase of about 15 per cent in domestic demand for light fuel oils.

An increase of 20 per cent in residual fuel consumption in this country.

in export demand at least for 1939. This opinion is based on the belief defense preparations will be increased in Great Britain and France, rather than curtailed. The armament race, if continued for the entire year, will produce an inevitable increase in petroleum requirements, both in the actual production of arms and in the reserves necessary to move and operate the equipment constructed.

Domestic motor fuel requirements in 1939, assuming an increase of 3 per cent, would be in the neighborhood of 534,000,000 bbls. It might run as high as 543,000,000 bbls., should the more liberal prediction of a 5 per cent gain over 1938 materialize.

Estimating October, November, and December domestic consumption and exports of motor fuel, it appears probable total United States requirements this year will be around 562,300,000 bbls. This figure, which also includes only partially complete data for October compares with combined domestic and export demand of 557,658,000 bbls. of motor fuel in 1937. Making up this year's total is estimated domestic demand of 518,000,000 bbls. and 44,300,000 bbls. in exports.

Because of the high unit consumption on new cars and the production schedule of 3,250,000 to 3,750,000 vehicles in 1939, the average for the 31,000,000 to 32,000,000 in service at the end of next year probably would show another increase. The curve of unit consumption has flattened out over the past three years and will apparently dip below the 1937 average when final figures are in for 1938.

Fuel Oil Estimates

An increase of about 15 per cent for 1939 in domestic demand for light fuel oils has been forecast, if the current heating season is representative of the average for the past five. The number of home heating burners in use has almost doubled during the past five years. Indications are that the present winter will probably record an average of 1,690,000 as compared with 1,550,000 burners used in heating homes last winter.

In addition to the increase in burner units in service there is expansion of Diesel fuel consumption, both in motor transport and in marine service. Next year will mark the first full calendar period in which leading motor transport manufacturers have offered a full range of commercial vehicles. Development of the high-speed Diesel engines on an assembly line basis for industrial and rural services is of recent conclusion. It is, therefore, difficult to determine the public acceptance of the light, high-speed Diesel in the fields for which it was designed and developed, but there is no doubt that consumption of distillate oils in this particular fuel service will be increased materially.

Through September, the 1938 domestic demand of 79,347,000 bbls. for light fuel oils and distillate was approximately level with the figure of 79,435,000 bbls. for the same nine months in 1937. Importance of the winter season on consumption of light fuels is revealed by the domestic demand for 34,780,000 bbls. of the nine months' requirements during the first quarter. Failure of this year's domestic demand for light fuels to exceed that of 1937 is revealed in the first quarter's statistics. Domestic demand for the first three months of 1937 for light fuels was 1,448,000 bbls. higher than prevailed this year due partly to milder temperatures in January, February, and March, 1938, and also to low industrial activity and the subsequent idleness of highway, railroad and marine transport equipment.

Exports of light fuel oils have run slightly ahead this year totaling 23,647,000 bbls. for the first nine months, compared to 22,717,000 bbls. for the same period in 1937.

Total domestic demand for 1937 was 116,841,000 bbls., a mark which probably will not be equaled this year, although low temperatures developing along the North Atlantic Coast and the Middle West last week sent the curve of requirements for home heating on a sharp upward climb. Consumption of light burning oils in home heating during all of October and the first three weeks of November was highly disappointing, but severe winter temperatures during the next five weeks could easily offset lack of demand during the earlier weeks.

From evidence now available it appears probable domestic requirements for light fuel oil in 1939 will approximate 134,000,000 bbls., based on an increase of 15 per cent. Considering that export demand will again increase about 5 per cent, a gain thought to be within conservative limits, shipments of light fuel oil abroad next year will run from 32,500,000 to 33,000,000 bbls. The combination indicates demand from United States refiners for light fuel oils and distillates in 1939 will total about 167,000,000 bbls., in comparison to approximately 147,500,000 bbls. for the closing year.

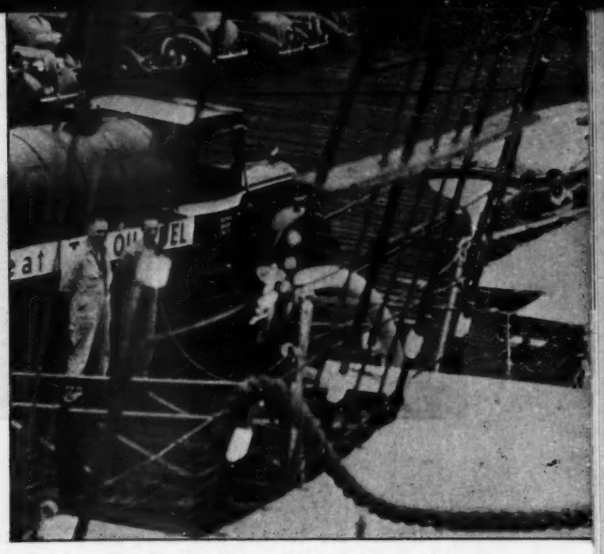
For the past three weeks reductions in residual fuel oil stocks have been reported due to the pick-up in manufacturing activity, but material on hand must be subjected to further liquidation if supplies are reduced to comfortable working margins. An abundance of residual fuel was accumulated during the first 10 months of this year due to curtailment of practically all industrial activities. Indications are that 1938 residual fuel consumption in this country will not exceed 295,000,000 bbls., compared to 325,514,000 bbls. in 1937. Exports for the year will be up about 18 per cent to roughly 17,850,000 bbls.

Estimates are that residual fuel consumption in this country will stage a marked increase in 1939, amounting to not less than 20 per cent over the indicated requirements for the closing year. It is calculated that domestic requirements for heavy fuel oil will run from 350,000,000 to 355,000,000 bbls. in 1939 and that exports will remain approximately unchanged at 17,000,000 to 18,000,000 bbls.

The outlook for 1939 requirements from this country's refiners is approximately as follows:

Demand for domestic and export requirements of motor fuel, 584,000,000 bbls., for residual fuel oil 367,000,000 bbls. and for light fuel oils and distillates 167,000,000 bbls., or a grand total of 1,118,000,000 bbls.

Despite the demand for fuel oils, refiners will continue to balance off their operations on gasoline. Therefore, the fuel oil forecast is relatively unimportant and has practically no significance. The additions to light fuel oil stocks since last winter have been substantial, but unimportant compared to residual fuels. Prospects are, however, that refiners may arrange their winter schedules over the next five months with a view to keeping motor fuel stocks within reasonable limits.



Jugoslavian naval vessel fueled at New England port

I.P.A.A. Subcommittees Working on Program

The independent element of the oil industry will have a complete program to present after the December 13-14 meeting of the special committee of 36 of the Independent Petroleum Association of America, Frank Buttram predicted Monday.

Mr. Buttram is chairman of the subcommittee on pipe line divorcement which was in session at Oklahoma City Monday.

"These subcommittees are not just mere committees," Mr. Buttram explained. "The members were selected with care and for their knowledge of the subject matter. There is a difference of opinion of course, but behind it there is a desire to make a worthwhile recommendation."

New York snow removal equipment is powered with Diesel and gasoline fuel

SPARKS FROM THE NEWS

SILVER LINING

If unity for defense can bring the administration and business together it may be another illustration of the old saying about clouds.

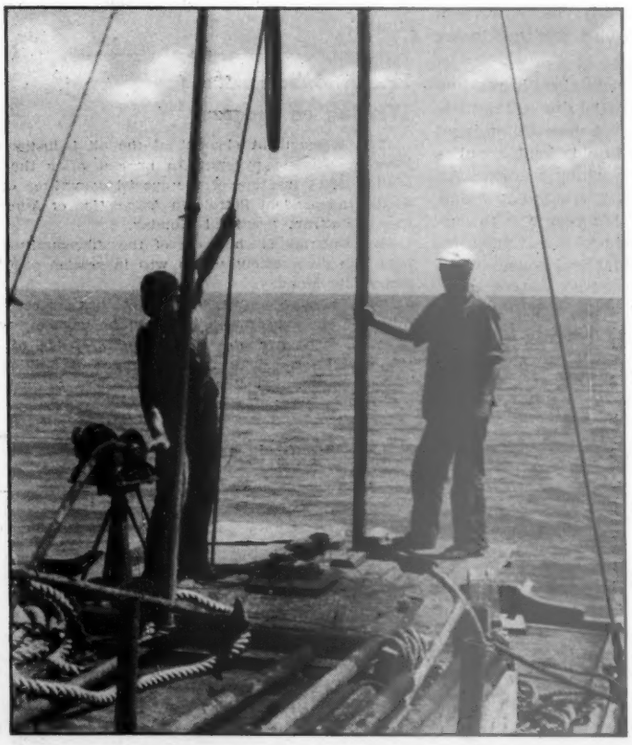
REALLY SOMETHING

Another purpose of the "monopoly committee" is investigation of the effects of government policies on business. That should be worth while.

PARADOX

What is a paradox? Here's one: Gasoline consumption is breaking fall records; stocks are lower than last year and so are refinery runs, although estimated requirements are higher. But prices are so low that refiners are losing money.

SEISMOGRAPH SHOT AT SEA



Exploratory crews working for Atlantic Refining Co. engaged in seismographic shooting along the coasts of Texas and Louisiana. From barges, shot holes have been drilled 15 to 20 feet beneath the floor of tidal waters

ONE LESS HOLIDAY

Exemption of Saturday, December 17, from the Saturday-Sunday shutdowns in Texas is interpreted as a Santa Claus gesture by the Railroad Commission. Come out from behind the whiskers, Colonel!

NEW MEXICO DISCOVERY

A gas strike in Lea County, New Mexico, proves a big structure and is hailed as the most important discovery in that state since extension of the Vacuum area.

WILDCAT SPIRIT

The Missouri lease play has spread across the line into southern Iowa—and yet there is no important oil production within 200 miles.

EITHER WAY

Overproduction is outlawed in western Kansas to prevent economic waste, and now stripper well operators in eastern Kansas are seeking regulations to prevent economic waste by underproduction.

THREE RECORDS

The deepest test in Texas has passed the 12,900-foot mark. It also encountered the thickest heaving shale section ever found and—is still drilling.

OUTLOOK

Present calculations on demand for petroleum products during 1939 can be discounted considerably and still leave a prosperous year for the oil business.

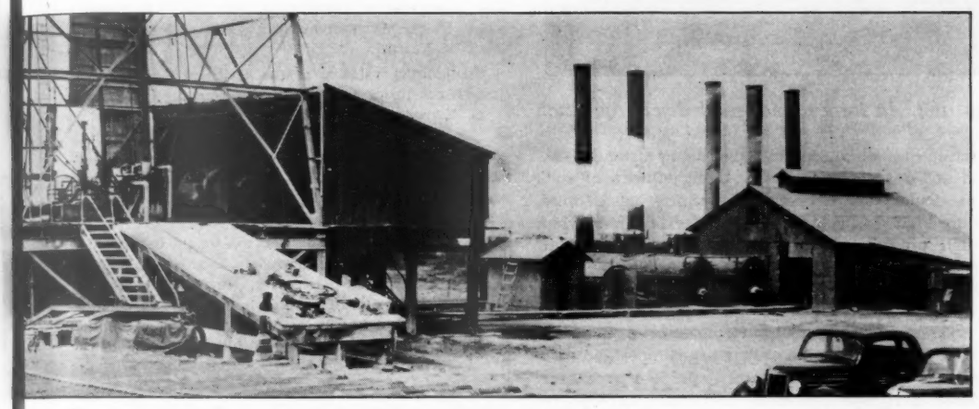
EVERYTHING COMES ETC.

California, as an oil producing state, had to wait 77 years for a 60,000-bbl. high-gravity oil well, but it was worth waiting for.

GOING DOWN

They are looking for the bottom in western Oklahoma: A Washita County wildcat drilling around 10,000 feet, a Grady County wildcat is down 7,500 feet and still going, and another 10,000-foot test in Grady County is being started.

Deepest Test in Texas Drilling in Agua Dulce at 12,900 Ft.



Union Producinq Co. No. 1 Minnie Brown. Uncovered boilers have been installed since well was started

By NEIL WILLIAMS

CORPUS CHRISTI, Tex., Nov. 28.—Passing the record held by Gulf Oil Corp. No. 103 McElroy, Upton County, West Texas, which was drilled to 12,786 feet, Union Producing Co. No. 1 Minnie Brown, Agua Dulce field, Nueces County, has become the deepest test in Texas. At 12,900 feet, 114 feet below Gulf's record, drilling still was under way, although heaving shale, which the test has been battling for over 4,800 feet, makes continued operation uncertain.

Projected as an exploratory test for formations below 12,000 feet, it is expected to be carried as deep as available facilities and ability of the operators to fight the shale will permit. Between $275,000 and $300,000 has been spent already.

Heaving Shale Section

The heaving shale section is the thickest ever negotiated and makes drilling to that depth an unusual engineering accomplishment. Except for 17 feet of sand and sandy shale at 8,075-92 feet, there has not been a break in the shale from the bottom of the last casing string (10-inch O.D.) at 8,024 feet. Down to 12,900 feet, this section totaled 4,876 feet below the casing, the last 4,808 feet being without a break.

The Cockfield, and, so far, the Yegua, carried only shale. Nonionella Cockfieldensis was topped at 10,584 feet, and Eponides Yeguaensis at 12,000-12 feet. The test still is in Yegua. Jackson shales were topped at 8,450 feet.

Drilling has been slow as it has been impossible to run with more than two points of weight on the indicator. Additional weight has tended to cause the drill pipe to whip against the walls. Rotation speed also has been held around 90 revolutions per minute. Seldom has more than 50 to 75 feet of hole been made per day.

Particular trouble has been experienced in pulling pipe. As long as the bit is on bottom rotating it usually is not difficult to control the shale and keep going, but every trip out of the hole occasions great anxiety over whether it will be possible to get down again. Seldom is the pipe pulled that the hole does not bridge at various levels. Cleaning out the bridges and getting the pipe down has been a tedious and hazardous undertaking, requiring careful control of drilling mud and circulation.

Since the hole has been in the shale, the shortest time in which a round trip has been made has been 33 hours. On that occasion very little bridging of the hole was experienced. One round trip required eight days, although this included some time spent in rig repairs.

Although bridging and heaving of the shale has stuck the pipe at various times, so far the sticking has not been serious, and it has been possible to get free quickly and easily.

Drilling and controlling the shale has been facilitated by the 8⅞-inch hole which has been carried from the last casing seat at 8,024 feet. So far as recorded this is the largest hole drilled to below 12,000 feet. The well was started with 28-inch hole, which was drilled to 400 feet where 21½-inch surface pipe was set and cemented. From there to 4,225 feet, 20¼-inch hole was drilled. At the latter depth, a string of 16-inch, 84-pound National Tube A.P.I. threaded and collar casing was cemented. This was the longest string of its size ever run. For the 10-inch casing, which was run to 8,024 feet, 14¾-inch hole was drilled. The latter casing consisted of 50.5-pound Spang Chalfant extreme line pipe, and was the second long string of its size ever run.

No trouble was encountered with the shale to 9,613 feet. That depth was reached in June after the test had been drilling since January. Then, after pulling pipe, and attempting to run back in the operators found the shale had heaved and bridged the hole, and it was impossible to get the pipe below 8,500 feet, 1,113 feet above the former bottom.

To clean the hole, get back to bottom and fight the shale it was decided to replace the "water" mud used up to that time with silicate of soda and brine base mud. With provision for additional circulation capacity and pressures the pipe was started back in. By July 13, the hole had been cleaned, and with the bit down to 9,613 feet drilling was resumed. Since then the shale has given continuous trouble.

Unsuccessful Attempts

At 10,792 feet, two unsuccessful attempts were made to run a protection string of 7-inch casing. On the first attempt, a bridge was encountered around 9,600 feet. The pipe was pulled, and after the hole was conditioned, was started back in but this time it was impossible to get below 9,400 feet. Following this failure it was decided not to try again, and drilling was resumed with open hole.

Most of the bridging occurs above 9,613 feet, to which depth the hole originally was drilled with water mud. After getting back to that depth, it usually is fairly easy to maintain the walls of the hole.

Cores are cut at least every 50 feet. A fishtail

Looking down from derrick floor on mud pits showing pump hook-up. Pump at left used for mixing mud

Mud and chemical house (left), showing mixing unit. In foreground, mud discharge ditch

core bit is used, cores being recovered by wire line through the drill pipe. The hole has been running about 5 degrees off vertical, but except for efforts to hold the course by natural drilling control, no attempt to straighten the hole by mechanical means has been made due to the hazard of losing the hole.

Circulation pressure of 1,750 pounds is being maintained while drilling through the shale. This is supplied by compounding of two pumps. These pumps, both equipped with 6-inch liners, are of 20-inch and 18-inch size, respectively. An additional 20-inch pump, now being used solely for mixing mud, can be connected up easily to serve either as a stand-by or to provide additional circulation pressure. A fourth pump is being utilized to circulate drilling mud through a cooling spray and to a secondary shale shaker.

Pumping Requirements

Two of these pumps have been installed since fighting the shale began. Previously, only two 20-inch pumps were in service. With deeper drilling and trouble with heaving shale, additional pump facilities became necessary to insure adequate circulation pressures and meet other pumping requirements. Also, because of increased steam requirements two additional boilers have been provided, making a total of five in service. Each is capable of developing 125 hp. and 300 pounds working pressure.

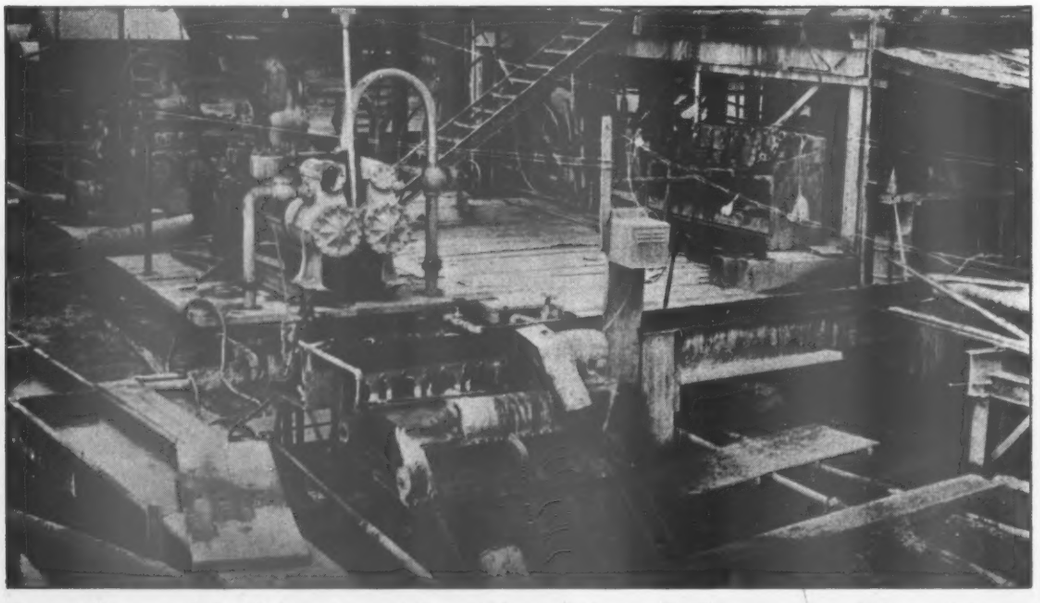
Although heaving shale was known to exist in the area, so much of it and so much trouble had not been anticipated which accounts for additional facilities and equipment having to be provided.

Special precautions are taken to insure control and proper conditioning of the drilling mud. Through the shale, weight of the mud, with silicate of soda base, has been maintained around 13 pounds with viscosity at 28 to 30 (funnel method with 1,500 cc. and 500 cc. out). Water mud used in drilling originally to 9,613 feet was kept around 11.8 pounds to the gallon. Covering has been provided for all pits and ditches to prevent contamination of the mud by rain. Two shale shakers are in regular operation. The first, which removes the larger shale particles, is on the discharge ditch from the well. Mud from the pits is pumped over the second shaker, which removes smaller particles and sand. The same pump circulates the mud from the pits through a spray line which serves to cool the mud. Included in the installation is a centrifuge for desanding and degassing although this is not operated regularly. Using silicate of soda particular care is taken to minimize loss of mud. Any mud that splashes on the derrick floor when drill pipe is broken out drains into the cellar, from which it is jetted to a reserve pit.

Drilling Hook-Up

The drilling hook-up consists of a Cameron 13⅝-inch, 6,000-pound test pressure operated master valve and S.D.A. pressure operated preventer, with a Hydril 13⅜-inch preventer on top. Included in the rig assembly are some of the largest and heaviest types of equipment, provided in anticipation of carrying the test to record depths for the field. In addition to equipment mentioned some of the main units of the assembly are: 136-foot derrick with 30-foot base; 14 by 14 twin cylinder, horizontal drilling engine; 10-inch drawworks with 8-inch line and jack shafts; 8-inch, 300-ton swivel; 6-sheave crownblock and 5-sheave traveling block; 27½-inch rotary directly driven with separate vertical engine. The blocks are strung with 10 lines of 1⅛-inch wire rope.

Prior to this, no tests in the field have been drilled below 9,000 feet, Union Producing Co. No. 1 Harvey, in 1937, went to 9,003 feet. Failing to get production it was plugged back and perforated in a 6,300-foot sand as a distillate well. This company has drilled a half dozen tests in the field to from 7,000 to 9,000 feet. None found production at those depths, although several were plugged back and completed in shallower horizons. Various sands ranging in depth from 2,000 feet to 6,800 feet have been productive of oil or gas, a 4,800-4,900-foot horizon being the most extensively developed.



One of the two shale shakers in operation at Agua Dulce well. Here, coarser shale particles are removed

United East and West Co. Case Set for Hearing December 7

AUSTIN, Tex., Nov. 29.—Hearing on the petition of United East & West Oil Co. to enjoin Saturday and Sunday shutdowns and other proration restrictions in East Texas was set Tuesday for December 7 by District Judge Ralph W. Yarborough in Fifty-Third District Court at Austin.

Challenging validity of the Railroad Commission's East Texas proration orders, the company, of which C. R. Starnes of Gladewater is president, sought to enjoin enforcement of the current order. The shutdown requested in the current order has already expired, as the last closings stipulated in November, were Saturday and Sunday, November 26 and 27.

J. W. Wheeler of the firm of Austin lawyers retained by Starnes said the petition would be amended within a few days for a possible broadening as well as revisions in some particulars. Now that the December proration order has been issued by the commission, the petition may be amended to direct complaints against it, as it continues the shutdown for four of the five Saturdays and four of the five Sundays in the month.

Colonel Thompson declined to comment upon the petition in the Starnes case in which it was alleged that major companies had cooperated with the commission in maintaining an unjustifiable high price for crude and that the commission had permitted itself to be used as an instrumentality through which the companies pursued "such illegal and monopolistic acts behind a smoke screen of governmental authority."

East Texas Crude Cut to 75 Cents by Cordova

AUSTIN, Tex.—Notice of a cut in the price of East Texas crude to 75 cents per barrel by Cordova Gathering System was received Saturday by the Railroad Commission. The firm purchases approximately 3,450 bbls. daily in the field and its line is connected to 253 wells. The cut amounts to 35 cents per barrel and is retroactive to November 15. The company principally supplies Clay Refining Co., operators of a 3,500-bbl. plant at Arp.

1939 CARS

New front-end styling not expected to complicate vapor-lock problem. More attention given path of air around motor

By W. T. ZIEGENHAIN

As the parade of 1939-model cars picks up speed and intensity, the oil industry is trying to evaluate the requirements of these new customers. More specifically, refiners and marketers are studying trends in car design to anticipate needs in the future. Just as motor car manufacturers are laying down the basic designs for their 1940 models at this time the refining industry is planning to supply satisfactory motor fuels for those cars and many models to come after them. In the present car models, refining engineers are trying to separate the "unique" from the "improved" types of motor and body changes to determine mass trends. They are especially interested in changes which are not readily apparent to the eye. One of these is "compression ratio."

Compression Ratios

In the 1939 models, there are comparatively few alterations in the compression ratios. Engine designers generally seem to have settled upon standard compression ratios above 6 to 1 and below 7 to 1 as a range with 6.2 to 6.7 reaching the great majority of cars.

In summary, it appears all normal size cars have been designed to utilize the regular or house brand gasolines of 70 to 76-octane value. In one instance an important car manufacturer states his motors have been adjusted to operate on house brand gasoline but that added power can be derived if premium grade fuel is used and if the carburetor is adjusted to utilize the higher octane fuel. Several offer high-compression heads.

To substantiate the statement that comparatively little change in compression ratio is shown for the great majority of new models, the accompanying table was prepared. A numerical average of the compression ratios for each year appears at the end of the table and shows a slight increase but this method of evaluating compression ratio changes does not take into account the relative number of cars of each type manufactured and leads to erroneous conclusions when cars of abnormal characteristics are tabulated.

Body Lines

Probably the most impressive exterior change in the typical 1939 car is the appearance of the front as a result of lowering the grill and narrowing the hood at the top. Almost without exception the air inlet is in the cat-walk and covers a relatively small area. At first, this prompts the belief that less air may reach the engine and that engine cooling is restricted. This does not seem to be a serious matter in the present models as plates have been provided back of the grill to produce a funnel-effect, leading all air that comes through the grill directly to an improved radiator. The picture in the upper corner shows this quite clearly, the grill having been removed from a new Buick just before the picture was taken. Adequate cooling is of importance to the oil industry, of course, as poor engine cooling is a source of vapor-locking and directly limits the volatility of the fuel which may be used.

The inverted canoe-shaped front end on most cars has been mentioned as an important change and is generally looked upon as a matter of styling. This is not entirely true, however, as the principal reason for choosing this narrow hood over the conventional flat-topped hood is that the new one provides much better road vision. Had the narrower hood not been adopted, the benefits of bigger windshields and the reduction of corner posts would have been partly lost.

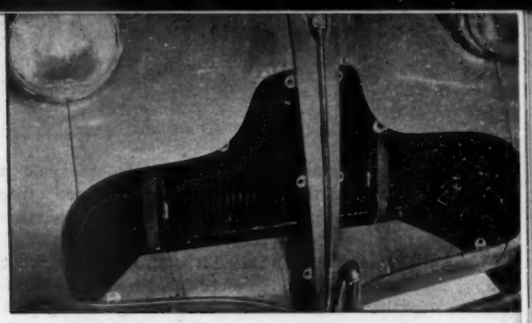
The change in the hood may be rightfully credited to the desire to promote safety. Other body changes are readily apparent in the new models, such as adherence to streamlining, recessed lights, tires and the elimination of part or all of the running boards.

The latter was made possible by lowering the center of gravity of most cars. This has been done by lowering the position of the engine, and it is interesting to note that Ford engineers have placed the cooling fan on the crankshaft on a majority of that company's new cars.

TREND IN COMPRESSION RATIOS IN LEADING STANDARD MAKES OF CARS

Car model,	1939	1938	1935	1932
Buick, 60	6.25	6.35	5.25	5.09
Cadillac, V-8, 75	6.70	6.25	6.00	5.30
Chevrolet, Master 6	6.25	6.25	5.45	5.20
Chrysler, 6	6.50	6.70	6.20	5.20
Dodge, 6	6.50	6.50	6.50	5.35
De Soto, 6	6.50	6.50	6.00	5.35
Ford, V-8, 60	6.60	6.75	...	...
Ford, V-8, 85	6.15	6.12	6.30	5.51
Hudson, 6, 8	6.25	6.25	6.00	5.80
Hupmobile, 6	5.75	5.75	5.75	5.40
Nash, 8	6.00	6.00	5.25	5.10
Oldsmobile, 8	6.20	6.20	6.20	5.90
Packard, 6	6.52	6.52	...	...
Packard, Super 8	6.45	6.50	6.50	6.00
Plymouth	6.70	6.70	6.70	4.90
Pontiac, 6, 8	6.20	6.20	6.20	5.20
Studebaker, Pres. 8	6.00	6.00	6.00	5.20
Average	6.32	6.31	5.99	5.50

Note: So far as possible cars listed for 1938-1932 were comparable as to model with these shown for 1939.



Grill removed from 1939 Buick to show funnel-effect provided for air to reach radiator. This is termed "cat-walk cooling"

Interiors

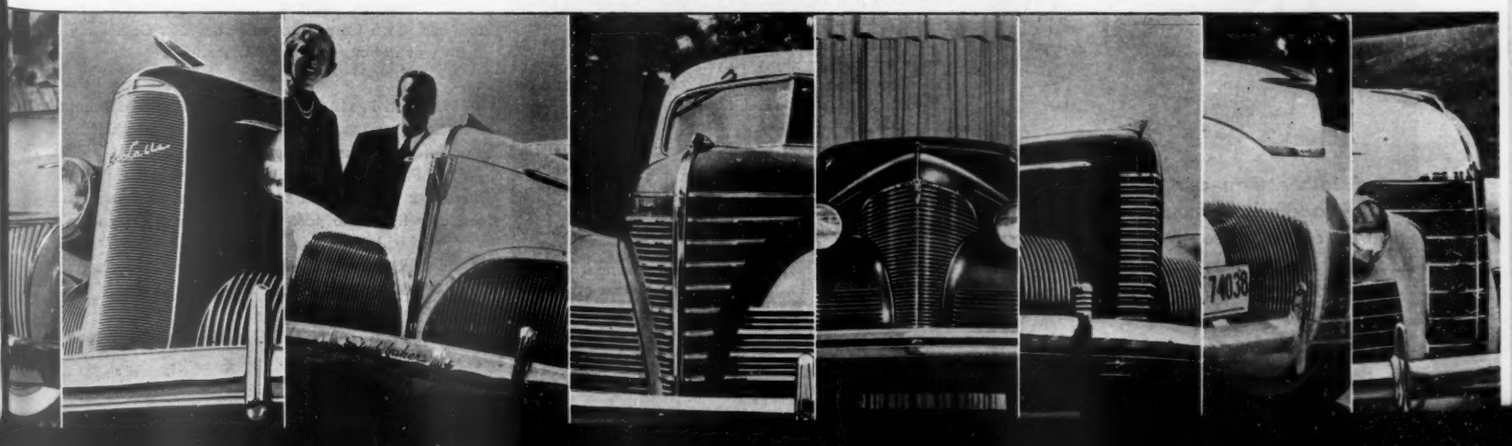
Larger glasses in windows and doors, attractively arranged panel boards and a gear-shift lever on the steering post instead of extending from the floor are the principal visible changes in a majority of the 1939 cars. However, the desire to promote safety soon becomes apparent when some of the gadgets are examined. On one series of cars right and left turn lights which are mounted on the center rear of the exterior are controlled from the steering post by the driver. Another safety provision is added on another series of cars in the form of colored lights which illuminate the speedometer on the dash. A yellow light appears at low speeds, green at moderate speeds and red after the car reaches 50 miles per hour. Still another car manufacturer saw fit to provide a rear window automatic wiper to promote safety when driving in rain or snow.

An innovation utilized by one manufacturer is a forced draft system that distributes filtered and heated air to the front and rear portions of the car from a unit located under the front seat.

Under the Hood

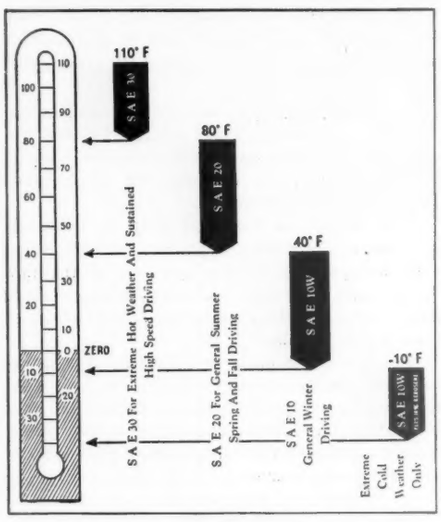
Filling station operators wanting to service the 1939 cars may sometimes feel at loss to unlock the hood to raise it. This is because radiator ornaments have been used in a number of instances as handles to lock the hood and this has been made possible by the increasing use of alligator hoods that lift from the front. Under the hood will usually be found the battery, and in at least one car an air duct has been provided to permit rapid dissipation of heat from around the battery. Rubber

Typical front-ends on 1939 model passenger cars. Note low radiator grills and narrow hoods to increase road visibility



mounted engine and parts have become the rule in all cars, and the use of rubber has spread quite generally to line shackles on the rear, thus eliminating the need to lubricate these parts.

Once the hood is raised it is also more apparent that air-cooling of the engine has been given considerable attention. The air flow is generally past



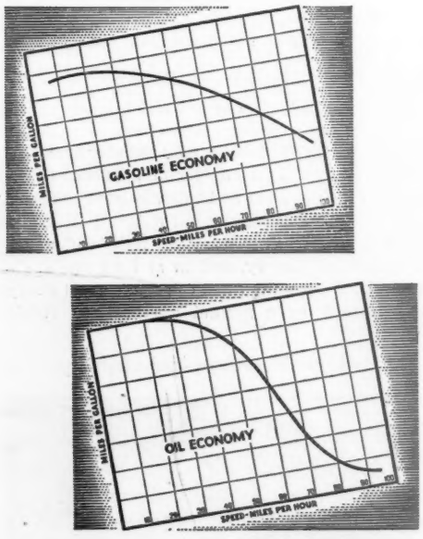
One car manufacturer has supplied this convenient chart to show when to use each grade of motor oil with changes in atmospheric temperature. Note the recommendation to use 10 per cent kerosene in the oil at temperatures below minus 10° F.

the gasoline piping, pump and around the crankcase before it passes between the flywheel housing and floor boards and then under the car. Side vents in the hood have been eliminated in many instances.

Lubrication

No unusual lubrication problems have been uncovered in the new cars, but there is an increasing use of hypoid gears in the transmission. This year Oldsmobile, Nash, Pontiac and Lafayette cars are so equipped and thus join Buick, Cadillac, Chevrolet, Chrysler, De Soto, Dodge, Graham, Hupmobile 8, La Salle, Lincoln Zephyr, Packard, Plymouth and Studebaker. Hypoid gear lubricants must now be an important part of every oil company service rack.

The only other change of more than passing interest in the decision on the part of Buick engineers to process bearings and small parts through an oil bath containing a suspension of graphite. In the words of the publicity offered for describing this process it is stated: "By means of this process an overlaying surface or coating is produced which also penetrates and becomes integral with the material itself. This overlaying coating provides a smooth but matrix-like porous finish on the parts being treated. The part is then dipped in a solution containing oil and graphite. This lubricating mixture fills up the microscopic pores of the chemically created surface and is retained by them as a more permanent lubricant. This process has been found to be particularly valuable when applied to small parts which develop only a slight amount of friction in action."



Speed rather than car design determines gasoline and oil consumption. A car driven 90 miles an hour uses twice as much gasoline and 12 times as much oil per mile as one driven 20 miles per hour

Missouri Rejects Increase In Gasoline Tax

By a five to two vote the people of Missouri at the recent election overwhelmingly over-ruled a gasoline tax increase of 1 cent per gallon enacted by the legislature. The voters in Missouri also rejected a proposed constitutional amendment which would have increased the present 2-cent per gallon gasoline tax rate to 3 cents.

When the voters of Missouri in 1928 adopted a constitutional amendment providing for a state road building program, the rate of gasoline taxation was fixed at 2 cents per gallon, which could not be changed by the legislature for 10 years. In anticipation of the expiration of the constitutional provision limiting the gasoline tax rate to 2 cents, the Missouri legislature in 1937 enacted a law increasing the tax rate to 3 cents per gallon, to be effective late in 1938. This action aroused wide resentment throughout the state, and a referendum petition was signed by approximately 200,000 qualified voters and filed with the secretary of state. That action put the question of the increase on the ballot in the November election. The question was answered decisively by the voters, who rejected the increase by a five to two vote.

Advocates of a higher gasoline tax in the state also obtained sufficient signatures for inclusion on the ballot of a referendum petition for a constitutional amendment which would have increased the gasoline tax to 3 cents per gallon. That proposal was also rejected by the voters of Missouri.

Kansas Stripper Well Hearing Now Set for December 6

The Kansas stripper well hearing scheduled for November 28 before the Kansas Corporation Commission in Independence was postponed until December 6 at the request of operators. The hearing had been called on application of operators in southeastern Kansas who protested proposed plans of the Sinclair Prairie Oil Marketing Co. to discontinue purchases from many of the stripper wells. It was hoped the producers and buyers could agree on a solution of the stripper problem.

A closed meeting of operators was held at Independence Monday night, November 28, to discuss confidential proposals as a basis of a solution to the marketing problem. Details of the proposals were not divulged.

Sale of a portion of the Sinclair Prairie pipe line system in eastern Kansas to the Petroleum Products Co. of Chanute, Kans., has relieved the situation so far as producers in Allen and Bourbon counties are concerned. Producers in Montgomery, Labette, Wilson and other southeastern stripper counties still face threat of loss of market unless an agreement is made with the Sinclair Prairie company or some other purchaser takes over the connections. Many wells in the affected area already are under 50 per cent pipe line proration.

A recent report disclosed that Sinclair Prairie lines were running 865 bbls. of oil daily from the company's own wells in the stripper district and 3,085 bbls. from wells of other producers. Other purchasers in the area are Standard Oil Co. of Indiana, taking 945 bbls. daily, and National Refining Co. taking 610 bbls. daily.

Alberta Conservation Measure Amended by Legislature

EDMONTON, Alberta.—The new conservation act, introduced into the Alberta legislature, continues the existing Conservation Board, consisting of Chairman W. F. Knode, C. W. Dingman and Fred G. Cottle; but gives it practically dictatorial powers in relation to the oil and gas industries. Acts and orders of the Conservation Board are to be final and not subject to injunctions or challenge in the courts. The board is given authority to shut down, purchase or operate any well, and to employ such persons as may be necessary to make its measures effective. Heavy fines are provided for contravention of the act.

Several days were spent in hearing representations from oil and gas operators and others affected. The act, as finally approved by the legislature, permitted appeal from the board's decisions to the Alberta government, and required the board within six months to present a plan for compensation to operators affected by conservation.

Obituaries

WALTER MILLER, JR., 36, son of Walter Miller, vice president of Continental Oil Co., died in a hospital at Chicago, November 24. He had been confined to the hospital for almost a year. He was general foreman of the lubricating oil plant of Continental when stricken. He was born in Elizabeth, N. J.

CHARLES H. CORWIN, 59, oil producer, of Bradford, Pa., was instantly killed on November 22, when the automobile he was driving skidded on a slippery pavement and struck a telegraph pole.

W. JENNINGS YOUNG, 42, president of Northern Oklahoma Gas Co., died suddenly at Ponca City, November 26, from a heart attack. He was vice president in charge of operations for Oklahoma Natural Gas Co. in Tulsa when he was appointed president of the Northern company. In 18 years' service with Oklahoma Natural he rose from the bottom to a vice presidency. Born in Butler, Pa., in 1896, his college work at Penn State was interrupted by 18 months' service in the war. He succeeded the late D. Chris Williams at Ponca City, March 8.

WILLIAM HARVEY CARPENTER, 77, died in Detroit, Mich., November 20. Born at Clarks Mills, Pa., he entered the producing business in 1882 at Bradford, Pa., and produced oil in all the eastern states, as well as Kansas, Oklahoma and Texas. Surviving are one son, B. L. Carpenter, Abilene, Tex., to his first marriage, one son, Glen Carpenter, and daughter, Cathleen Carpenter, of Detroit, to a second marriage.

WILLIAM F. GATES, 71, prominent in Mid-Continent oil field operations for 17 years, during which time he was president and general manager of the former Prairie Pipe Line Co., died at Independence, Kans., November 24. He had been ailing for two years and seriously ill for the past month. He retired from active work as head of his company shortly before the merger of the Sinclair and Prairie interests in 1932. He was born at Hillsdale, Mich., on August 15, 1867.

STATE CAPITALS

KANSAS

KANSAS CORPORATION COMMISSION held two meetings last week and continued them this week in its effort to ascertain the market demand for Kansas crude in December. The matter of special allowables has been the stumbling block throughout the several days' sessions. Purchasers' nominations were only 150,000 bbls. per day, or 9,000 bbls. below the Bureau of Mines estimate of demand. The Skelly Oil Co. and the Independent Oil and Gas Association of Kansas have been opposed to special allowables. Continental Oil Co. made it known that it preferred to take oil out of Oklahoma fields if its request for special allowables is rejected.

TEXAS

ON FOUR SATURDAYS AND FOUR SUNDAYS in December Texas fields will shut down. The Railroad Commission of Texas so decided on Monday when they fixed the gross allowable production of the state at 1,710,082 bbls. per day. The Saturday and Sunday idle days will reduce the gross allowable to a net of 1,294,577 bbls., which is about 15,000 bbls. a day higher than the net set on November 1, but which is 49,323 bbls. per day less than the U. S. Bureau of Mines December estimate of demand for Texas oil.

There will be only four Sundays in December, but there will be five Saturdays. Instead of permitting production on the fifth Saturday the commission picked December 17 as the odd Saturday on which 100 per cent production will be allowed. Commissioner Lon A. Smith did not sign the December order.

NEXT STATEWIDE PRORATION hearing in Texas has been set for December 12 by the Railroad Commission, at which an exhaustive study of crude oil and gasoline stocks will be attempted. Executives of many large companies have signified their willingness to attend the meeting, and at Chairman Thompson's request, will be prepared to testify to the quantity of gasoline and crude oil which should be normally held in storage. Colonel Thompson said the hearing should be one of the most important the commission has ever held, and will serve as a preliminary for the Interstate Oil Compact meeting to be held two days later at Fort Worth. Dr. A. G. White of the Bureau of Mines, who at the request of the compact commission, made a survey of all above-ground oil supplies in the United States, will be asked to come to the meeting and give his conclusions particularly whether actual physical waste of oil occurs in storage.

LON A. SMITH was assured chairmanship of the Texas Railroad Commission after January 1 when Chairman Thompson's term expires. Mr. Thompson announced that he will nominate Mr. Smith following a conference last Saturday between the two and Jerry A. Sadler, who replaces C. V. Terrell the first of the year.

OPERATORS IN TESORO FIELD, a recent Duval County discovery, requested 20-acre spacing at a Railroad Commission hearing held last week. Arkansas Fuel Oil Co., at the request of which the hearing was held, presented a map with a drilling program providing for one well to 20 acres, spaced within 330 feet of lease lines. The field is divided into diamond-shaped sections which are readily cut into 40-acre units. The plan called for cutting these units into triangles of 20 acres each and drilling a well in the center. Sinclair Prairie Oil Co. would divide the 40-acre units into rectangular 20-acre plats, then drill a well in 330 feet from lease lines.

CALIFORNIA

REFLECTING FEWER COMPLETIONS, crude oil production in California during the month of November will be approximately the same as that brought to the surface in October. The allowable for December is being compiled by the Central Committee of California Oil Producers, and will then be allocated by Umpire J. R. Pemberton among the various groups. For several months the allowable has remained unchanged at 610,000 bbls. per day with a tolerance of 5,000 bbls. daily to take care of contingencies. For the month of December, the Bureau of Mines recommended a reduction of 27,000 bbls. per day in California's allowable production by setting 589,700 bbls. per day as the amount of crude required to meet the December demand. This is 89,700 bbls. below the daily allowable for December of last year.

ILLINOIS

THE ILLINOIS LEGISLATIVE COUNCIL decided to make no recommendation to the sixty-first General Assembly for regulation of the state's growing oil industry.

Instead the council voted to merely submit to the legislature in January the report of its research department, which made an exhaustive study of oil legislation but included no suggestions for regulatory laws.

The council's action came after Lieutenant Governor John Stelle, ex-officio member of the council meeting to prepare a legislative program, opposed any restriction on oil production.

Interrupting the reading of a research report estimating the state's 1938 oil production at 21,500,000 bbls. as compared to consumption of 54,500,000 bbls., Mr. Stelle told the council there should be no limitation on production until it equals the state's consumption.

The lieutenant governor sought to put the council on record immediately as opposing production control by law, but he was declared out of order by Chairman Benjamin S. Adamowski, of Chicago.

Later a subcommittee headed by Nicholas L. Hubbard, Mount Pulaski senator-elect, was scheduled to meet and decide what it thinks the full council should do about the controversial oil control issue.

OKLAHOMA

ALLOWABLE PRODUCTION IN OKLAHOMA in December will remain at 428,000 bbls. per day. The Oklahoma Corporation Commission decided on this figure on Monday, November 28, following a hearing of producers and purchasers with State Conservation Officer W. J. Armstrong.

LOUISIANA

THE LOUISIANA DEPARTMENT OF CONSERVATION increased the state allowable by 12,080 bbls. for the month of December, placing the total allocation for the state at 247,580 bbls. daily. The figure is divided into two parts, giving North Louisiana a daily allowable of 63,900 bbls., and 183,680 bbls. for coastal Louisiana.

The Shreveport field, heretofore unprorated, was given a flat allocation of 300 bbls. per well per day, making the total field allowable at present 1,200 bbls. daily. The order concerning the Shreveport field was made effective November 23.

NEW MEXICO

NEW MEXICO'S DAILY OIL PRODUCTION for December was set at 98,285 bbls., including 3,000 bbls. for export. The state Oil Conservation Commission set the figure 10,115 bbls. under the daily figure for November, and 5 per cent under the recommendation of the U. S. Bureau of Mines.

Acme

State capitol, Topeka, Kans.

Monopoly Committee Begins Investigation December 1

WASHINGTON, D. C.—Senator O'Mahoney, chairman of the so-called "Monopoly" committee, has issued the following notice:

"In connection with the nature of the hearings, it is worth while to call attention to the fact that Section 3 (b) of the resolution by which the committee was created, the Department of Justice, the Department of the Treasury, the Department of Labor, the Department of Commerce, the Securities and Exchange Commission, and the Federal Trade Commission are directed to appear before the committee and present evidence by examination of witnesses and the introduction of documents and reports. Now the hearings for which arrangements were made are being conducted under that section of the resolution. It is to be remembered that the committee itself has the authority to hold any other hearings that it may desire to hold, but nothing has been done with respect to that phase of its powers.

"It was decided that the hearings would open with an introductory statement on the national economic scene. This statement will be made by Dr. Isador Lubin of the Bureau of Labor Statistics, who is a member of the committee, by Dr. Willard Thorp, economist for Dun & Bradstreet who is an expert attached to the Department of Commerce under the authority of this committee, and by Leon Henderson, executive secretary of the committee. The thought of the committee in arranging for this introductory statement is that it would be helpful to have this outline drawn of industry and commerce with special emphasis on employment and unemployment and payrolls. It will be a factual delineation of changes in the industrial status of the country, of production and distribution, and the effect of these various factors not only upon employment and unemployment but also upon the national income.

"Following this introductory statement the Department of Justice, which has been working with the Department of Commerce and the Federal Trade Commission in the study of patents, will begin the presentation of that part of the study.

"The following resolution was unanimously adopted by the committee:

"Resolved, that it is the unanimous sense of this committee that its function and purpose is to collect and analyze, through the medium of reports and public hearings, available facts pertaining to the items specified in Public Resolution 113 (75th Congress), in an objective, unbiased, and dispassionate manner, and that it is the purpose of the committee to pursue its work solely from this point of view.

"The character of the hearings is also indicated by Paragraph F of the report on procedure which states that at a later time in the progress of the work of the committee opportunity will be afforded to all interested persons to present to the committee their views as to what solution or solutions would be desirable or necessary."

Safety Awards Presented to Employes of Carter Oil Co.

Safety awards for 1937 were given to 30 Carter Oil Co. supervisors and their employes at a dinner in the Mayo Hotel in Tulsa, November 28. A handsome plaque was awarded to Superintendent W. A. Watkins and his men of the central division for the lowest accident frequency rate for 1937, and framed safety certificates were awarded to the following supervisors and their employes: Perry A. Ratliff, Foster Precise, William Brown, Elton A. Rose, R. W. Kirkpatrick, W. A. Watkins, William T. Mills, Cleo Combs, Elisha Boothe, A. E. Perry, George E. Edgett, O. D. Harper, Otis Haines, Charles Quillan, John B. Spurrier, William Brown, F. W. Bruner, W. B. Crutcher, J. M. Sherlock, J. W. Graham, A. M. Hancock, O. D. Harper, J. M. Connaway, Charles E. Wells, Melvin Denny, Adrian Lankford, M. E. Morrow, Thomas E. Brownfield, R. C. Daniel, Opie Dimick and Condon McKay.

L. G. Owen, general counsel, toastmaster, introduced James A. Veasey, former vice president and general counsel, who recounted his long and agreeable association with Carter Oil Co. and Oklahoma oil men generally.

J. J. Conry, president of Carter Oil Co., presented the safety plaque to Mr. Watkins, who is now superintendent of the eastern division. F. W. Floyd, vice president and production manager, presented the certificates to the production department and L. F. McCollum, vice president in charge of exploration, presented the awards to the exploration department. P. A. Ratliff, superintendent of the Dunn gasoline plant, who has been with Carter for 40 years, closed the meeting with a short safety talk.

Pipe Line Proration Being Lifted in K.M.A. Field

FORT WORTH, Tex.—Pipe line proration which has been in effect in the K.M.A. field since last March is being lifted following a move made by the Railroad Commission. Texas Co. has agreed to increase its takings from 80 to 100 per cent of the well allowables from approximately 500 wells to which it is connected. However, the company stated that other buyers must take over 125 of its connections. Gulf Pipe Line Co. has taken on 60 well connections and Magnolia Pipe Line Co., Sinclair Prairie Pipe Line Co. and Continental Oil Co. are reported in agreement with the plan. The action secured came through personal approach to the managers of the various pipe line companies by Chairman Thompson.

Under pipe line proration the wells have been limited to between 18 and 20 bbls. as compared with the well allowable of 23.5 bbls. under Saturday and Sunday shutdowns. Present production in the field is around 16,500 bbls. daily, but with restrictions removed it is expected to increase to around 20,500 bbls.

United States Supreme Court To Hear Spacing Case

The Supreme Court of the United States on December 12 will hear arguments pending a possible review of the Oklahoma well-spacing act, in Patterson versus Stanolind-Amerada case which attacks the legality of the 10-acre well-spacing clause in the state conservation law, the basis for all well-spacing regulations.

H. Guy Woodward, associate counsel of the Stanolind companies, will be in charge of the arguments for the rule.

Colonel Barton's Statement

Col. T. H. Barton, president, Lion Oil Refining Co., El Dorado, Ark., takes exception to the portion of the statement ascribed to him after the A.P.I. meeting in Chicago, "I never believe anything an oil man says," which was assumed to be a humorous aside and was reported as such. He writes:

"I was terribly shocked upon reading this statement and cannot help but believe it was an oversight in some manner, or that in attempting to brief a statement, the writer of the article inadvertently left out some parts of it.

"Most of my business life has been spent in the oil industry. I have never known, as a class, a finer group of men. I have never had any reason to doubt any responsible statement. I feel that the oil industry has great leadership, and I claim a great number of them as my personal friends. I feel that this statement is an affront to them, and the only reason I can assign for a statement of this kind is that I think I may have said that I did not believe the assertion of any oil man who said that the oil business had no future and that it was being controlled by certain interests. There have been a great many statements promiscuously made to the effect that the oil business was controlled, and I have yet to find the first evidence of this.

"I never saw a finer spirit of cooperation than existed at the directors' meeting of the A.P.I. at Chicago when it was turned into an open forum and the problems that were confronting both independent and integrated companies were openly and frankly discussed in a friendly manner."

Oil Burner Standard Discussed at Meeting

NEW YORK.—A four-point program to establish standards in the oil burner field was considered at an industry-wide meeting held in New York. The steps scheduled to go into effect on January 1, included the requirement of test performance on every oil burner installation, and the recommendation that all oil burner installations be done by properly qualified dealers.

Two other phases, one dealing with standards for manufacturing, the other proposing laboratory tests of burners will be considered further by the committee of standards of which R. M. Sherman is chairman. Mr. Sherman presided at the meeting which was attended by 39 manufacturers.

The meeting, while called primarily to discuss the suggestion for standard specifications made by the Federal Housing Administration, also developed considerable sentiment for a single representative trade association, with many opinions expressed from the floor favoring the present Oil Burner Institute as the "available vehicle."

Dr. I. J. Fairchild of the National Bureau of Standards urged the creation of a single unified trade body to carry on the standardization work.

While there was agreement on the establishment of factory tests for burners and of capable installation and servicing, the meeting decided to postpone action on some questions, such as standard specifications on firing rate of burners until the manufacturers of boilers and warm air furnaces took action on standardizing their specifications. Meanwhile, the firing rate, it was agreed, should be based on the burner manufacturer's recommendations.

Canadian Operators Benefit

Under the new Canadian-American trade agreement, oil operators in Canada will benefit by removal of the 3 per cent excise tax on oil well machinery. The tariff of 1 cent a gallon on imports of refined gasoline has been allowed to stand.

THE MARKETS*

CRUDE OIL: *Little change in the crude oil market is observable, although an opinion expressed in some quarters was that the increasing weakness of the motor fuels, with tankcar prices of the higher grades off in the Mid-Continent territory, would tend to drag crude prices down. Total stocks continue to shrink, but offerings from areas without ready outlets at prices below posted schedules were reported to have shown little diminution.*

REFINERY: *Light fuels benefit from cold waves in the East and Middle West. Although weather conditions discourage use of cars, the movement of gasoline is still running higher than is seasonally normal. Restoration of activity in various industrial lines has checked the rise of heavy fuel stocks. Natural gasoline now the strongest division in the list, with quotations higher. Much underselling reported in the lubricants.*

TANK-WAGON AND POSTED DEALER: *Unsettled in some eastern areas, with scattered reductions. Dealer prices off in several middle western districts.*

FINANCIAL: *Further declines were suffered by the oil shares in a generally bearish market, though minor gains were recorded by a few issues. Average of 30 representative stocks for week ending November 26: High, 29.02; low, 28.07; close, 28.41. Week ending November 19: High, 29.58; low, 28.14; close, 28.50.*

*Detailed information in Market Section.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Proof Galore

The oil industry should welcome the most thorough investigation by the Temporary National Economic Committee which opens its sessions December 1.

Strange though this statement may appear, it is based on the conviction that such an investigation, fairly and justly conducted, will result in benefit to the industry.

The T.N.E.C., generally referred to as the "monopoly committee," is supposed to unearth and expose monopolistic practices. Every attack that has been leveled against the oil industry has been launched on a charge of monopoly. From any soap-box and many seats in Congress "monopoly" and "oil" are parallel words.

This investigation by a committee of reputed integrity and serious purpose offers an unequaled opportunity for the industry to dispose of that slander for all time.

"Ye shall know them by their fruits."

Let Chairman O'Mahoney and his colleagues consider the facts about the oil industry's marvelous progress cited by J. Howard Pew in his noteworthy address before the American Petroleum Institute at Chicago.

Are lower prices to the consumer an evidence of monopoly?

Are wages above the average proof of monopoly?

Are low earnings on investments the purpose of monopolistic practices?

Are the recurrent depressions in the oil industry consistent with any imaginable form of monopolistic control?

Look at the record. Eighteen years ago the average price of gasoline without tax was 29.74 cents. On October 1 this year the average price without tax was 13.76 cents, and the quality was much higher.

Refinery payrolls were $20,000,000 larger in 1937 than in 1929; the average hourly pay was 50 per cent more.

In 16 years, 1921-1936, the oil industry had deficits in four years and profits in 12, the highest yearly return being 4.96 per cent and the average only 1.357 per cent.

If this be monopoly, make the most of it.

Has the public been oppressed by low prices and better fuel? Have workers been ground down by the highest wage rate paid in any manufacturing industry? Is 1.35 per cent an exorbitant return on any investment?

If the oil business were controlled by a monopoly is it not strange that none of the evils and abuses popularly associated with monopolistic practices is to be found in the record of its service to the public?

The most convincing and unanswerable testimony that can be placed before the committee is the oil industry's achievement. Its remarkable record of persistent initiative, prodded by the keenest competition in finding oil, producing it most efficiently and constantly improving the quality of products, made that achievement possible.

More money has been sunk in the oil industry than has ever been taken out of it. The rivalry that inspired the wildcatter runs through the whole story of the industry.

The tireless quest for new fields, for better methods of exploration and production, for more efficient processes of refining, for products that will give the user improved results and supply wider needs, stimulated competitive research and enterprise in every division of the industry.

Competition is stamped upon every page of the industry's history, a story that belies the taint of monopoly as completely as the fruits of the industry's labors.

Chairman O'Mahoney's committee can be shown the oil industry as it really is, so the entire country can see it. It is a chance for a complete show-down that will put the oil business right and confound the calumniators.

Programs and Meetings

Program Committee Plans For Spring A.P.I. Session

Preparation of the program for the 1939 spring meeting of the southwestern district of the American Petroleum Institute's Division of Production has been placed with a new program committee, of which E. P. Hubbard, Gulf Oil Corp., Houston, Tex., is chairman. Other members are:

R. S. Dewey, Humble Oil & Refining Co., Midland, Tex.; T. W. Johnson, United Gas Co., Shreveport, La.; R. H. McLemore, Sun Oil Co., Beeville, Tex.; L. A. Ogden, Pure Oil Co., Fort Worth, Tex.; P. D. Torrey, Sloan & Zook, Houston, Tex., and J. E. Warren, Carl B. King Drilling Co., Dallas, Tex.

Houston Geological Society Election of Officers

The Houston Geological Society has elected the following officers for 1939:

Perry Olcott, Humble Oil & Refining Co., president; Russell A. Weingartner, Stanolind Oil & Gas Co., vice president; Carleton D. Speed, Jr., Speed Oil Co., secretary-treasurer.

Advisory committee: Olin G. Bell, Humble Oil & Refining Co.; Hugh T. Richardson, Standard Oil Co. of Texas; William F. Calahan, Union Producing Co.

Illinois Oil Operators Informed Of Objects of the I.P.A.A.

CENTRALIA, Ill., Nov. 26.—The need for nationwide cooperation of independent oil operators was stressed by representatives of the Independent Petroleum Association of America, who spoke at a dinner meeting here.

The speakers were H. B. Fell, executive vice president of the association and president of the Simpson-Fell Oil Co. of Ardmore, Okla., and Russell B. Brown, Washington, D. C., general counsel for the organization. The meeting, the first ever sponsored in this state by the association, was attended by about 125 Illinois oil operators.

Mr. Fell, who delved into the early efforts and achievements of cooperative independent movements, cited the organization's five-point program as the basis for his address.

Mr. Fell also explained the function of the six state Interstate Oil Compact of which Illinois is a member. He said that the organization does not have the power to determine the course its six members shall follow.

In March, 1937, he said, the executive committee of the association warned independent operators that the market was rapidly becoming over-stocked.

However, the danger signal was disregarded and during 1937, about 45,000,000 more barrels of oil was produced than was in demand.

The association urged at that time that operators study more closely the estimates of demand made by the Bureau of Mines.

Through a closer analysis of the supply and demand relationship by operators, crude stocks today are lower than they have been in 18 years, Mr. Fell declared.

"Gasoline and gas stocks are also low," he said, "but residual fuel stocks are the highest in history."

Mr. Fell asserted that whatever happens nationally will affect every oil producing state. He pointed out that the association deals only in national and not state problems. The organization leaves local, district and state associations to work out solutions to problems confronting operators within a state.

Russell B. Brown, the second speaker, told the operators that before the enactment of import taxes on oil, average daily incoming shipments amounted to 335,000 bbls. After passage of the tax, oil imports were reduced to 108,000 bbls. a day, opening a daily market of about 200,000 bbls. more for American operators.

Mr. Brown also cited the association's efforts to have this nation's oil used in the manufacture of asphalt, which in the past has been largely made from foreign petroleum.

International Acetylene Association To Meet in Houston

The thirty-ninth convention of the International Acetylene Association is to be held in Houston, Tex., on March 8, 9, and 10, at the Rice Hotel.

An interesting technical program, covering the most important developments in the application of the oxyacetylene process of welding and cutting is in preparation.

Mid-Continent Association Annual Meeting Dec. 19

President J. D. Collett of the Mid-Continent Oil and Gas Association announces that the board of directors of the general association will convene in annual meeting at the Tulsa Club, Tulsa, at 10:30 a.m., Monday, December 19. The agenda will include reports of officers and committees (including the reports of the general chairman of the standing committee on state and local taxation and the standing committee on federal income and excise taxation). The customary annual banquet will not be held.

West Central Texas Oil and Gas Association Meeting

The program for the seventh annual convention of the West Central Texas Oil and Gas Association to be held in Abilene December 10 has been announced by J. C. Hunter, president.

Local arrangements for entertainment are to be under the general direction of the Abilene Chamber of Commerce and its oil and gas committee, headed by Russell Stephens. Association chairman of entertainment is A. J. (Art) Frazier, vice president.

The all-day program will open with a breakfast for directors and officers at 8 o'clock Saturday morning, to be followed by a business meeting at 10 a.m. Nominating and resolutions committees will report at the business session, although election of new officers and final reports will not be made until evening.

Speaker for the noon luncheon will be Gerald C. Mann, attorney general-elect, with Col. E. O. Thompson, chairman of the Texas Railroad Commission; C. V. Terrell, retiring commissioner; G. A. (Jerry) Sadler, commissioner-elect, and Lon A. Smith, commissioner, to be presented.

Oil Show to Have Many Visitors From Foreign Lands

Due to the holding of the three World Fairs in the United States during 1939, many oil men who would not otherwise be in the country will visit the Oil-World Exposition in Houston, Tex., from April 24 to 29, inclusive. According to information received by Ed Lenzner, general manager of the Oil-World Exposition, the number of representatives of oil companies who will attend the Houston show from all over the world will greatly exceed that of any previous year.

Many of these have expressed the intention of taking in the Oil-World Exposition and either the World's Fair in New York or the Pacific International Exposition at San Francisco. Some will take in all three. Invitations to attend the oil exposition have already been sent to more than 2,000 oil men in all countries where oil is produced or refined. These invitations are for the personal attendance of the recipients and for sending all men that have anything to do with equipment.

CALENDAR

December.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York, Dec. 5-9.

POWER & MECHANICAL ENGINEERING, thirteenth national exposition, Grand Central Palace, New York, December 5-10.

OIL AND GAS ASSOCIATION OF MICHIGAN, annual meeting, Mount Pleasant, Mich., Dec. 7.

PETROLEUM ELECTRIC POWER CLUB, tenth annual conference, Mayo Hotel, Tulsa, December 8 and 9.

WEST CENTRAL TEXAS OIL AND GAS ASSOCIATION, annual meeting, Abilene, Tex., Dec. 10.

INTERSTATE OIL COMPACT COMMISSION, quarterly meeting, Fort Worth, Tex., Dec. 14-15.

January, 1939.

SOCIETY OF AUTOMOTIVE ENGINEERS, annual meeting, Detroit, Mich., Jan. 9-13.

February.

NATIONAL ASPHALT CONFERENCE, Los Angeles, Calif., week of February 27.

March.

AMERICAN SOCIETY FOR TESTING MATERIALS, committee week and regional meeting, Deshler-Wallick Hotel, Columbus, Ohio, Mar. 6-10.

INTERNATIONAL ACETYLENE ASSOCIATION, 39th Annual Convention, Houston, Tex., March 8-10.

INDIANA INDEPENDENT PETROLEUM ASSOCIATION, spring convention, Hotel Severin, Indianapolis, March 14-16.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Oklahoma City, Okla., March 22-24.

April.

AMERICAN CHEMICAL SOCIETY, Baltimore, Md., April 3-7.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio, April 13-14.

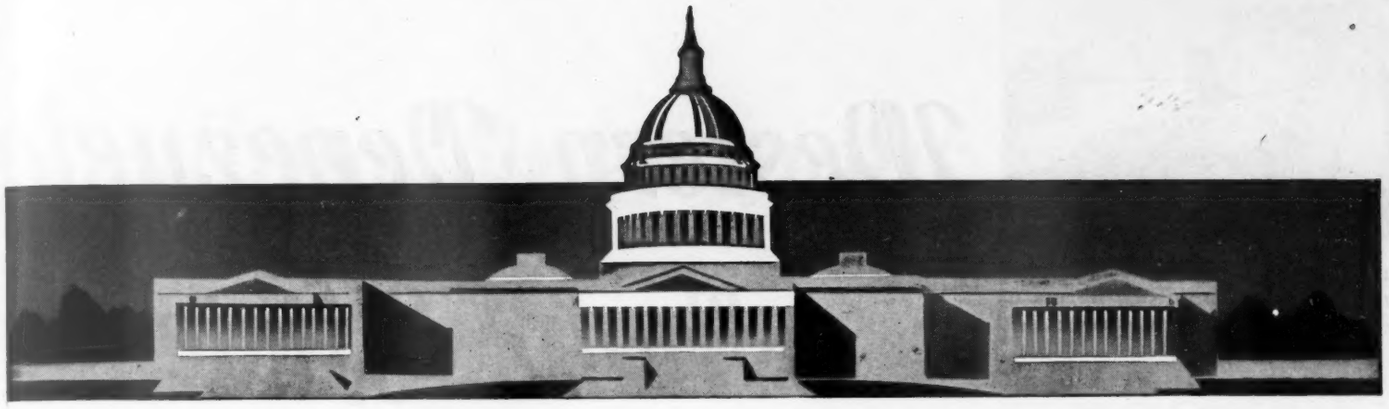
OIL-WORLD EXPOSITION, Houston, Tex., April 24-29.

May.

PETROLEUM ELECTRIC SUPPLY ASSOCIATION, Houston, Tex., May 2-4.

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Rice Hotel, Houston, Tex., May 2-4.

NATURAL GASOLINE ASSOCIATION OF AMERICA, Hotel Tulsa, Tulsa, Okla., May 3-4-5.



Defense Problems May Modify New Deal

By HENRY D. RALPH

WASHINGTON, D. C., Nov. 28.—The new emphasis on national defense may have little direct bearing on the oil industry, but it promises to be a major factor in bringing about better relations between the federal government and business generally.

National defense quite obviously will be the key to President Roosevelt's policies during the next year or so, and some observers are going so far as to predict it will be the basis for an entire reorientation of the New Deal. The president's statements and actions leave no doubt he is greatly concerned over world developments and that he is determined to defend democracy against the aggression of dictatorships. Critics may suggest that more ulterior motives of the new emphasis on national defense may be an attempt to cover up the rebuke of the New Deal of the recent elections, to turn the country's attention away from domestic difficulties, to provide a new excuse for continued deficit financing, and to propose a program which will not be subject to partisan opposition. But whatever the motive, the defense program promises to be a vehicle for bringing in an era of better feeling between business and government.

One of the problems of national defense planning is gearing industry to the rapid and efficient production of war materials, not only munitions and fighting equipment, but supplies of all kinds which will be needed in augmented quantities by fighting forces and civilian activities. Petroleum products are naturally among the most important of the materials needed for maintaining a modern army and navy, and the joint Army and Navy Munitions Board has evolved plans for assuring sufficient supplies of oil in case of mobilization. Details of these plans are not being revealed for strategic reasons, but in case of an actual war there would be created an organization to supervise production and distribution somewhat along the lines of the Fuel Administration which functioned during the World War, and possibly conservation measures would be urged upon civilians, such as the restriction of joy riding.

Oil Essential Factor

Petroleum is listed by the joint board as one of 54 critical materials for which procurement plans have been prepared. In addition, there are 21 strategic materials which are essential for national defense and on which dependence must be placed in whole or in large part on sources abroad, and for which strict conservation and distribution control measures will be necessary.

Since petroleum falls in the list of materials which can be supplied from within our own borders, the munitions board does not contemplate any pre-war measures looking to the accumulation of large reserves at strategic points, such as military stock piles of tin, tungsten, manganese, and other strategic materials. About all that officials will say regarding oil is that they have no present worries, since the producing, refining, and distributing facilities of the oil industry are ample for all present defense plans, and the industry has shown an ability to cooperate with the War and Navy Departments in such ways as developing capacity to produce high octane fuel for airplanes. In case of a protracted war, the Navy has plans for developing the oil in its naval petroleum reserves, and some studies have been made on the development of substitutes for petroleum. In this connection it is interesting to note that the Army and Navy Munitions Board does not put much faith in the possibilities of developing alcohol fuel from agricultural products, declaring "while this subject has attractive points, the difficulties inherent in the problem are considerable". Instead, the board's experts have concluded the most probable substitute for petroleum is hydrogenated coal, while other possibilities are mined oil and shale oil.

Plans for "M—Day"

In spite of the importance of the petroleum industry in any plan of national defense, the War and Navy Departments are taking no part in any discussions of further government control of the oil industry. It is apparent their present attitude is not to encourage the use of the national defense argument as an excuse for federal regulation of oil production and refining. They are concerned purely with the problem of preparing the country for possible mobilization—"M—Day," they call it—and for this purpose they see no need for control of the oil industry prior to actual outbreak of hostilities.

Not so with all other industries, however. For while the military planners are not advocating strict regimentation of industry during peace times as is being done in certain foreign nations, they are attempting to promote both governmental and business policies which will place industry on a better footing to supply the needs of a war machine.

The prime example is the electric power industry, and here the military men in the administration appear to have engineered a truce, if not a lasting peace, in the war which has been waged between the government and the private utilities for some six years. They convinced the president there is an alarming shortage of excess electric power production capacity near many of the vital industrial centers of the East and that unless steps are taken to build new generating plants and interconnecting transmission lines there will not be sufficient power available to maintain industry on a war basis. The result was a conference between government and utility officials at which utilities agreed to undertake immediately a substantial program of new construction and expansion, and the expressed willingness of the government to assist in financing these operations is taken as an indication the administration has no intention of destroying such capital investment through competition or excessive regulation.

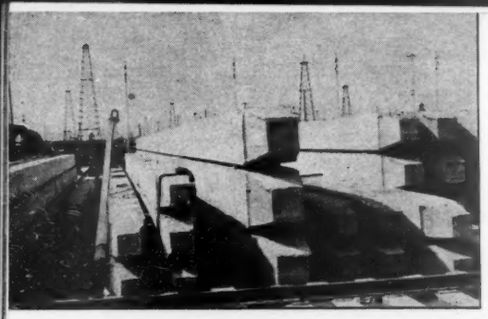
Many other industries have been surveyed by the War Department to determine any weak spots which would hamper the smooth flow of supplies needed for war. Some 10,000 factories have been inspected and card-indexed to show what type and quantities of war materials they could supply if needed. The managers of these plants have been told what will be expected of them on M—Day and in many cases plans have been prepared for altering equipment and production schedules almost over night.

Industry Cooperating

The War Department has met full cooperation from industry in this program, and in its turn is assiting in many ways. Machine tools are being designed to supply the particular needs of individual factories which will be asked to switch over from their present product to the production of war supplies. Programs of apprentice training are being developed to insure a sufficient number of skilled mechanics. Motorized equipment and other supplies needed by the Army are being standardized with commercial products wherever possible. Educational orders are being placed with selected firms in order that a considerable number of factories will be prepared to turn out vital military equipment not produced in peace times.

President Roosevelt's annual message to Congress in January, it is being predicted, will deal almost entirely with national defense. There is no doubt much larger appropriations will be asked for the Army and Navy, particularly for aircraft, and while this will mean a continuation of budget deficit, it is expected the armament program will provide such a stimulus to business the resulting increase in employment will make it possible to reduce relief expenditures very considerably. Increases in air forces and expanded motorization of the Army undoubtedly will lead to an increase government purchases of petroleum products.

The theme on which the president appears to be working is that democracy must be prepared to defend itself if the ideals and institutions of this country are to be perpetuated without interference from foreign sources. As a necessary part of this theme, and also in order to get the entire country wholeheartedly behind his defense program, the president must demonstrate democracy functions.



Concrete piles at La Salina concrete plant of Lago Petroleum Corp. ready for use as derrick foundations, Lake Maracaibo field

Western Venezuela Show Efficiency

By C. O. WILLSON

MARACAIBO, Venezuela, Nov. 28.—Through the narrow 35-mile strait which separates Lake Maracaibo and the Gulf of Venezuela there ply daily 20 to 30 tankers engaged in the transportation of the world's largest single supply of heavy oil.

Refineries on two islands of the Netherland West Indies—Curacao and Aruba—located, respectively, 250 miles and 185 miles away—are the destinations of most of these tankers whose business it is to make 10 to 12 round trips monthly from the lake. There are few more impressive sights in the oil industry than a view of these specially designed tankers picking their way back and forth through the crooked and shallow bar separating the lake and the gulf. The tankers usually go in and out of the lake in fleets to take advantage of the tides.

These tankers over the past 20 years have transported approximately 1,250,000,000 bbls. of crude oil and it is reasonably certain that a like amount will be made available in world markets from the same area within less than 10 years. New discoveries or favorable market conditions may shorten this period considerably.

Complete Facilities

While certain fields both within the lake area and those at inland points have passed their peak production periods, there are other potential fields which might offset any decline in older pools.

The new field in Bachaquero is the farthest south of the lake producing fields. The first tanker shipment from this field was made by Shell company since the first of the month. While present production is small, completed wells indicate a major proven area has been established comparable possibly to some of the other lake fields.

In most of the older areas there are still many undrilled locations. Some wells which formerly were producing are now shut in awaiting market outlets.

This situation emphasizes the fact that this area is essentially a supplier of heavy oils, with operations dominated by conditions in these markets rather than in gasoline and light oils, as is the case in the United States. The business recession of the past year has had its effect on the demand for heavy oils throughout the entire world. With the marketing of these heavy oils outside the United States in the hands of a few international companies, the operating policy in this area has been to maintain supplies in line with reduced needs. It is true that substantial yields of gasoline are obtained from these heavy crudes through cracking operations, but this does not alter the fact that more than 75 per cent of a barrel of crude is disposed of as refined products ranging from the light Diesel oils to the residual bunker oils consumed largely by industries and the marine trade.

The lake producing area, with short breaks, now extends approximately 50 miles along the north half of the eastern side of the lake. The lake itself has an area of 8,000 square miles, about one-third as large as Lake Michigan. The operating companies in these fields are Venezuelan Oil Concessions (Shell group), Lago Petroleum Corp. (Standard of New Jersey), and Mene Grande Oil Co., C.A. (Gulf Oil Corp.). Based on concessions granted years ago, the V.O.C. carries on the land development. The Mene Grande company has a strip 1 kilometer (five-eighths mile) offshore, with the remaining lake operations controlled by the Lago company.

Affiliated interests of the Standard of New Jersey and the Royal Dutch-Shell groups also have production in this western Venezuela area as shown in the accompanying table. At this time the Standard companies (Lago and Standard of Venezuela) account for 35.5 per cent of the total production in western Venezuela; Royal Dutch (V.O.C., Colon and Caribbean), 48 per cent; Mene Grande, 15 per cent, and the remainder by smaller producing interests.

The writer saw most of these operations from the air as far inland as the western end of the Tarra producing area, a few miles from the Colombian border, and by car and boat had a closer view of the actual operations. Some of the inland operations west and east of the lake are as isolated as those of eastern Venezuela described in a previous article. In the Tarra area, for example, supplies are largely brought to the producing fields and camps from Lake Maracaibo by river boats and overland motor transportation. The fields are located in a densely wooded section of a mountainous area.

This particular area shares with the neighboring Barco development of Colombia the hazards due to the activities of the Motilones Indians. This Indian tribe, whose members are entirely too accurate with their arrows, continue to maintain an unfriendly attitude toward the oil invaders despite all the efforts that have been made to cultivate their friendship. They were reported in the Tarra area since the first of the month. This means extra precautions on the part of operators and they constitute a special hazard to seismograph and other geological crews whose duties call them into that section of the country.

The lake development is more than an oil operation. The sand bar through which the shallow-draft tankers have transported the crude oil has also seen the marine movement of a wide variety of products not commonly associated with oil operations. This is due to the nature of the operations and the fact that oil companies have been compelled not only to drill wells and operate them but also establish all the facilities which in the United States are usually furnished by outside organizations.

Machine shops, large warehouses which must be stocked with supplies from 3 to 12 months in advance of needs, complete marine facilities, improved highways, power and water plants, concrete plants, elaborate housing, club houses, swimming pools and other outdoor amusement facilities, dining halls, and theaters, all company-owned, present a picture which has been 20 years in the making and which is not duplicated in any other part of the oil world.

Housing has expanded rapidly over the past two years and much of this work is now under

Tanker loading dock and La Rosa field

Crude gathering station in Lake Maracaibo and wharf of Standard Oil Co. of Venezuela at Cumarebo field

Drilling Operations Against Hazards

Twin wells of Mene Grande Oil Co. in Tia Juana field, drilled from one location

way. The three companies have several hundred units of various types, most of them housing Venezuelan workers. The companies are cooperating with the government's policy of providing housing facilities for Venezuelan employes. These houses are of the one-, two- and four-family types with modern conveniences not generally found away from oil company operations. Many of these homes are constructed of concrete blocks, looking toward operations which will extend over many years. A separate article could be written on what the oil companies are doing to make their employes comfortable. It is sufficient to say here that they are doing everything possible in the way of housing, food supplies and entertainment.

Electric power and lights are widely used both within and outside the fields. The Lago company has a 20,000-kw. plant to supply its needs, and the V.O.C. is completing a new plant of about the same capacity. The Mene Grande company also operates a 10,000-kw. plant.

The lake fields at this time have approximately 2,000 producing wells. Of this number, 33 per cent are flowing naturally, 62 per cent pumping and the remainder are operated with the air or gas lift. Of this total, Ambrosio, La Rosa and Benitez account for approximately 775, Tia Juana 300 and the remainder are located in the Lagunillas field. V.O.C. operations account for approximately 920 of these wells, Lago 530 and the remainder are operated by Mene Grande. V.O.C. is the largest operator in the Ambrosio-La Rosa area, and Tia Juana, with the Lago and V.O.C. operations approximately equal in Lagunillas. There is little difference from month to month in the production of these two companies from the lake fields, with the Mene Grande lake production averaging approximately 70,000 bbls. daily. The bulk of this company's production is transported to its large terminal at Las Piedras on the Paraguana Peninsula. At that point it is loaded in large tankers and transported to other points. The International Petroleum Co., Ltd., through a contract entered into a year ago, is now a large buyer of Mene Grande production. Part of this output is topped of its light ends at a topping plant near La Salina and is sold as fuel oil without further refining. A more detailed report summarizing the operations of these three companies will be published later.

The V.O.C. operations on land do not differ materially from those of companies in the States operating under the same general conditions. The producing depths in the lake region vary from around 2,300 feet in the Ambrosio-La Rosa field to more than 5,000 feet in the lake region of the Lagunillas field. No special drilling problems are encountered in the land operations. Formations encountered are not difficult to drill with drag bits.

Several of the marine operations of the Mene Grande and Lago companies have been described in previous articles appearing in The Oil and Gas Journal.*

Gasoline plant in Punta Benitez field

La Salina club of Lago Petroleum Corp.

*"Installation and Operating Problems in Venezuelan Compressor Stations," December 26, 1935.
"Venezuela Company Uses Mechanical Process for Treating Oil Emulsions," December 26, 1935.
"Transportation in Venezuela Is Big Job in Itself," December 31, 1936.
"Increase in Tia Juana Area Outstanding in Venezuela," December 30, 1937.
"Use of Screened Liners in Lagunillas Field," December 30, 1937.
"Venezuela Output 9 Per Cent of World," December 31, 1936.
"Refining Crude Oil From Venezuela," July 23, 1931.

These marine operations have been steadily improved from year to year and present operations are largely on a routine basis. The Mene Grande company does not encounter the lake depths at which the Lago company operates and most of its operations are carried on permanent supports located in the water and connected by catwalks to land. The company is often able to drill two or more wells from one boiler location supported by wooden piles. The Lago company is forced to use barges in most of its drilling operations, with its problems of permanent structures in the lake, including pipe line connections, much more difficult.

The Mene Grande company twin-well operation in Tia Juana is unusual and not duplicated by the other companies. In the Tia Juana field the company secures a 16° A.P.I. crude at 2,050 feet and a 14° gravity oil at 2,150 feet. There is a shale break between these two producing horizons running from 20 to 60 feet. The company desired to produce these two horizons with separate wells and has perfected a method of doing this from one drilling location.

Drilling Methods

Briefly described, the deepest test is drilled first and electrical tests are made to secure information on formations which furnish the basis for drilling the second well. In drilling the second test the drawworks are not moved. Two legs of the derrick are raised 3 inches and the other legs are lowered 3 inches. Adjustments are made in the crownblock, which has 18 inches travel space. This permits the two wells to be drilled 70 inches apart from the same location. A standard 122-foot derrick is used with 24-foot base and 4½-foot top.

The Lago operation is the one in which most visitors are interested.

New employes from other fields sometimes have difficulty adjusting themselves to these marine operations. The story is told of a Texas driller who upon arrival was assigned to night duty. It was a stormy night, not uncommon in this area, and when morning arrived he had disappeared. He was later found at the airport awaiting a plane back to the States. To all requests that he give the field a further trial, he replied: "Me for Texas. I'm a driller, not a sailor." Another operator from the plains of the Southwest in the States insisted for a time on taking off his shoes and putting on a life belt every time he went out on the lake.

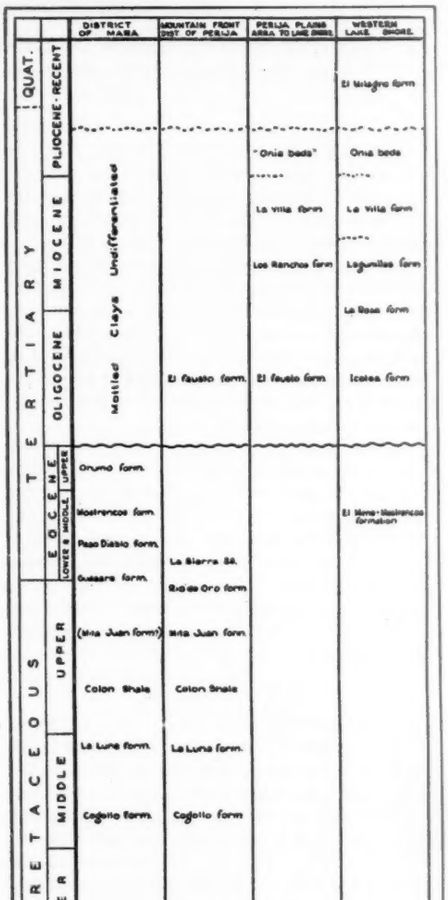
Actually these marine operations have been perfected to the point where they are no more hazardous than those on land and are carried on with remarkable efficiency as regards drilling time and other phases of operation.

The operation requires more than 200 marine units varying in size from launches to three 110-foot barges, which were built by the company's marine department. The barge operations, which are moved from location to location as needed, include drilling, concrete mixing, pile driving, construction, fuel oil, and pipe laying. The management has under consideration an office barge which will be used to facilitate operations.

The writer visited one of the drilling operations more than 5 miles from shore. The test, with power, drilling mud and pipe furnished from a barge

anchored adjoining the location, was drilling below 5,000 feet despite rough water following an early morning storm.

This particular test is located in approximately 50 feet of water. The 122-foot derrick is supported



Correlation of geologic sections, western Maracaibo basin

by 12 concrete piles (three to a corner). Each one of the piles is 133 feet long, 24 inches square and weighs approximately 40 tons.

The piles are made according to specifications at the company's concrete plant at La Salina. Sizes vary, depending largely on depth of water in which wells are drilled. At a new location the size required is first determined by sinking a test pile. Then the 12 piles required for a drilling location are made, about 30 days being required for manufacture and curing. These piles are transported to the location in barge and driven in place by a pile driver operated from another barge. This pile driver, with its 110-foot beam, is an impressive piece of marine equipment. With the piles in place they are capped with concrete. A steel floor, which is completely fabricated at a plant on shore, is then moved to the location. Cantilevers on two sides provide for the drawworks and a pumping unit when it is required in the operation of a well.

The drilling barge consists of four 125-hp. boilers, three of which are required to carry on the drilling operations. The drilling barge equipment includes ditches, pumps and other equipment for handling mud and above these the racks for pipe.

With completion of the well, pipe line connections have to be laid from each well to a flow station in the lake. The flow stations include the separator equipment, the gas being taken to gasoline absorption plants, also located in the lake. This gas is compressed later at another location and is either returned to the producing horizon or used in gas-lift operations. From the flow stations larger marine pipe lines connect to storage on shore. The company has facilities at La Salina terminal in the La Rosa area to load crude at the rate of 20,000 bbls. hourly.

Geology

The most complete information regarding the geology of the Lake Maracaibo region is published in the proceedings of the first Venezuelan Geological Congress held last year at Caracas, and English translations were recently made available by Servicio Geologico, Ministeri de Fomento. The accompanying geological section of the fields in western Venezuela is from the paper presented by H. D. Hedberg and L. C. Sass entitled, "Synopsis of the Geological Formations of the Western Part of the Maracaibo Basin."

Dr. Guillermo Zuloaga, head of the Servicio Geologico, says the pools of the Maracaibo basin are found:

"1. In closed reservoirs of anticlines and domes of considerable variety, the age of the productive formations ranging from Cretaceous to middle Miocene.

"2. In gently monoclinal reservoirs of porous sandstone or sands lensing out of dip against shore lines.

"3. In reservoirs of a combination between 1 and 2.

'Shore-line accumulations are responsible for most of the oil produced at present in the Maracaibo basin. Those productive shore lines, however, are not on the margin of the basin as we have previously defined it, but are close to the central portion of the topographical depression as the Maracaibo basin presents itself today. These old geological shore lines are the result of different arrangements of deeps or troughs and of arches or barriers. The maximum depression of the sedimentary basin as far as the basement complex is concerned is now considerably to the south from the center of the topographical basin. It is in the extreme south of the Maracaibo Lake and in close proximity to the high elevation of the Merida Range."

Considerable exploratory work is under way in western Venezuela. In most cases these tests obtained low-gravity crude which will be developed later when conditions justify the additional investment for pipe line facilities to water transportation points.

VENEZUELA CRUDE PRODUCTION

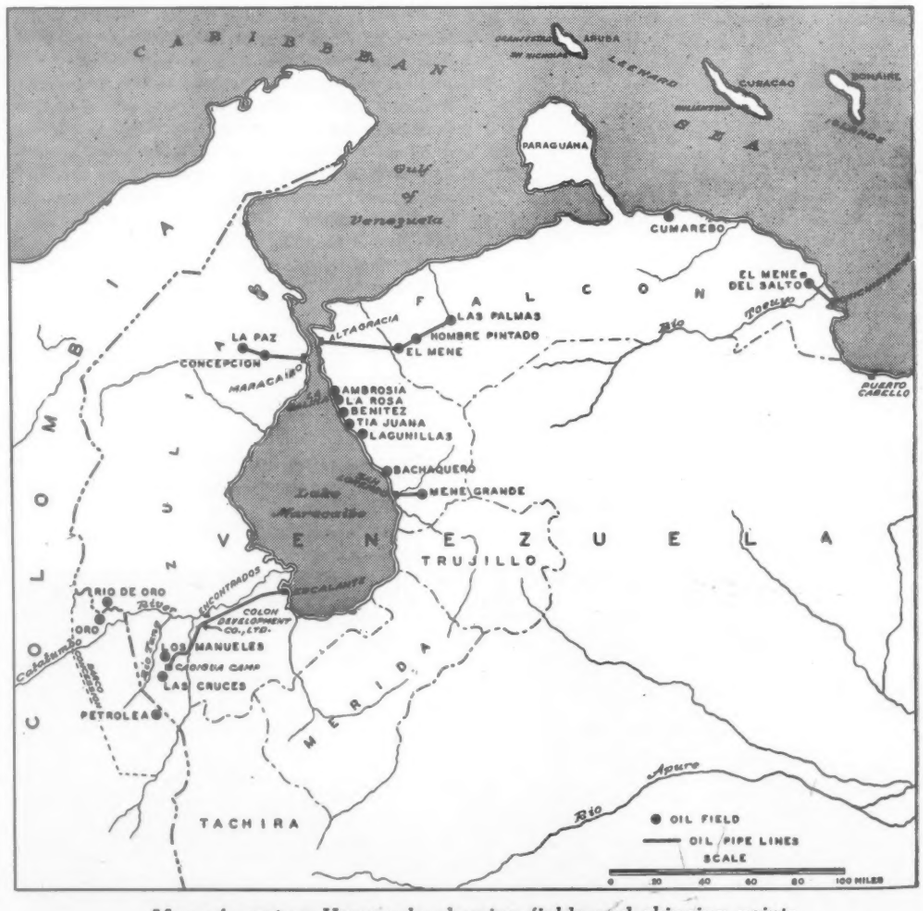
(By Fields)

	Oct., 1938	Oct., 1937	Daily avg. Oct., 1938
Lagunillas*	9,055,534	8,252,101	292,114
La Rosa	999,608	2,251,256	32,245
Tia Juana	2,728,874	2,641,015	88,028
Quiriquire	2,025,193	2,246,152	65,329
Mene Grande	973,937	1,244,994	31,417
Tarra	491,461	386,168	15,854
Temblador	224,578	.....	7,245
Cumarebo	208,885	198,545	6,737
Pedernales	141,997	131,215	4,581
Lapaz	58,985	51,503	1,903
Concepcion	75,024	87,835	2,420
El Mene	52,576	56,513	1,696
Bachaquero	77,148	.....	2,489
Total	17,113,800	17,547,297	552,058

*Due to a change in reporting by one company all Lake fields are grouped by it under this heading.

(By Companies)

Venez. Oil Con.	5,899,586	5,232,444	190,309
Lago Pet. Corp.	4,887,980	5,570,794	157,677
Std. of Venezuela	2,713,039	2,944,748	87,517
Mene Gde. Oil Co.	2,043,000	2,062,000	65,903
Caribbean Pet. Co.	973,937	1,244,994	31,418
Colon Dev. Co.	491,461	386,168	15,854
British Controlled	52,576	56,513	1,696
No. Venez. Pet.	52,221	49,636	1,684
Total	17,113,800	17,547,297	552,058



Map of western Venezuela showing fields and shipping points

INTERNATIONAL

Mexican Government Seizes Additional Oil Land From Americans

Evidence that the gestures from the United States Government have not deterred Mexico from seizing privately owned oil properties became more abundant last week. The Mexican Government has ordered seizure of an additional 2,014,000 acres of undeveloped American oil land in northeastern Mexico. About 500,000 acres already have been occupied. This was revealed in a report Department of Economy agents in Monterrey submitted to the second federal District Court at Mexico City. The report said properties of Standard Oil Co. of New Jersey subsidiaries, the Titania and Mercedes companies, had been seized in conformity with "general orders" from the Department of Economy issued November 8.

Revealing that parts of the Mercedes and Titania properties not mentioned in President Cardenas' expropriation decree of March 18 had been seized, the agents reported to the court that "obeying general instructions emanating from the Department of Economy, November 8, we have taken possession of the equipment and properties of these companies." The new general order to extend the seizure decree to all properties held by American oil companies apparently affects the following lands: The Mercedes company's 40,000 acres at Mier in the State of Nuevo Leon, the Titania company's 500,000 acres at Rio Bravo in the State of Tamaulipas, all belonging to Standard of New Jersey subsidiaries; from the Sinclair-Charro subsidiary at Rio Bravo in the State of Tamaulipas 500,000 acres; from the Continental subsidiary, Zacate, 307,000 acres. Actually taken already, it is reported, is part of the Titania property and all the Zacate holdings, which were seized quietly late in October.

Later reports say the federal District Court issued a temporary restraining order against government occupation of the lands pending decision on the companies' application for injunction.

While the recently seized land is largely undeveloped, it is estimated that at least $4,000,000 has been spent on exploratory and development work. It is also reported the latest seizures were originally intended to accompany or follow by a few days the March 18 decree covering producing properties. The attitude of the United States delayed this action, but with settlement of the agrarian indemnity claims the Mexican Government was emboldened to take the step. Meanwhile, in the United States, the possibility loomed that the Treasury Department would impose dumping duties upon Mexican oil entering the country at less than the going price in the domestic market. The Treasury was reported awaiting reports from agents investigating both in Houston and in Mexico. Since barter or indirect sales play such an important part in Mexico's current oil disposal methods it is considered almost impossible to arrive at a correct price involved in the transactions.

Statement by Importers

Executives of Eastern States Petroleum Co., importing under bond about 15,000 bbls. of Mexican crude per day, defended their operations last week in prepared statements. Richard B. Kahle, president of Eastern States, declared the alarm over Mexican imports is based on fancy rather than fact.

"For the records," said Mr. Kahle, "and speaking as the present sole importer of Mexican crude into the United States, the Eastern States Petroleum Co. imports are at the rate of 15,000 bbls. per day. Not a single barrel of this oil or of the products therefrom has been sold for delivery in the United States since the beginning of imports by us into our Houston, Tex., refinery. Every barrel brought in has been sold in the export trade. It is childish to use 15,000 bbls. of Mexican oil as the basis for all the ills within an industry, which according to the American Petroleum Institute has a potential refining capacity of over 4,000,000 bbls. per day."

Mr. Kahle compared the imports of Mexican oil averaging 15,000 bbls. per day to "165,000 bbls. per day of low-cost Venezuelan oil flowing into American markets at less than the domestic price."

J. T. McCarthy, vice president of Eastern States, declared a day after Mr. Kahle's statement that the company is not importing expropriated oil from Mexico.

"The Mexican crude oil which we are importing into our refinery at Houston," said Mr. McCarthy, "comes from the wells of the Mexican Government's own corporation, Petromex, which has had continuous production in the Poza Rica field since before expropriation. No American companies have holdings in the Poza Rica field. The only foreign company having property there is a British-owned company, El Aguila (Shell). We are not dumping for the simple reason that Mexican crude is being purchased at the world value for Mexican crude."

Eastern States is operating under a bonded warehouse permit granted by the Treasury Department on October 21 for the refining and re-export of crude oil from Mexico.

In Mexico, the government oil authority dismissed one of its administrators, Miguel Saavedra, production manager for the southern Vera Cruz fields, for allegedly conspiring with foreign oil interests. Discharged with Saavedra were several technicians. The group was specifically charged with supplying daily production reports and other operating data which were being used by the former owners to the detriment of the government.

Japanese Government Advocating Resort to Mining for Oil

In view of the present demands for oil, the Japanese Ministry of Commerce and Industry is reported to be advocating the use of "drilling shafts" (oil mining), not previously employed in Japan but successful in France and Germany. The government is expected to subsidize prospecting for oil and drilling under the new method for five years, with an expenditure of about 15,000,000 yen for 240 localities. The subsidy for the next fiscal year is said to be about 4,500,000 yen for 150 localities.

Under the present method of drilling, only about 20 per cent to 30 per cent of the total volume of oil is recovered while the new system is supposed to extract approximately 90 per cent. Three fields in Niigata and Akita prefectures have been selected for tests to be made by a geological survey during the coming fiscal year.

Production in Peru and Colombia Rose During Month of October

International Petroleum Co., Ltd., production in Peru and Colombia followed routine lines in October showing a slight increase over September which was a day shorter. Peru's production for the first 10 months this year is more than 1,000,000 bbls. less than for the same period in 1937 while that from Colombia is higher by nearly the same margin.

During October, International production in Peru totaled 1,112,430 bbls., compared to 1,070,339 bbls. for the preceding month and with 1,235,120 bbls. for October, 1937. The company's output in Colombia totaled 1,868,631 bbls., against 1,852,467 bbls. in September and with 1,811,759 bbls. for October, 1937.

Peru's accumulative production from International holdings for the first 10 months this year totals 11,066,405 bbls. compared to 12,308,868 bbls. for the same period in 1937. Total yield of 17,579,586 bbls. has been reported from January to October by International in Colombia this year compared to 16,675,265 bbls. for the same ten months in 1937.

Exports From U.S.S.R. Gained 50 Per Cent During September

Exports of petroleum from U.S.S.R. staged a 50 per cent increase in September, but for the first nine months this year the total shipments from that source are less than half of the corresponding 1937 period.

Substantial increases were reported for September in exports of gasoline and fuel oil. Total petroleum exports for the month were 109,634 metric tons consisting of gasoline, 52,359 tons; fuel oil 39,708; lubricating oil, 16,180 and kerosene, 1,387 tons.

During the first nine months Russia has shipped abroad 604,140 metric tons of petroleum products compared to 1,256,630 tons for the same period in 1937.

The following figures (metric tons) show the comparative position of 1938 export shipments for the first nine months and in the preceding year:

Products—	Nine months 1937	1938
Lubricating oil	194,518	89,686
Fuel oil	606,026	280,314
Kerosene	132,764	23,732
Gasoline	323,322	210,408
Totals	1,256,630	604.140

Refinery Expansion

Barnsdall Refinery Resumes Operations on December 1

Notices were mailed by the Barnsdall Refining Corp. to owners of stripper wells in southeastern Osage and northern Tulsa counties that at 7 a.m. Thursday, December 1, its refinery at Barnsdall, some 35 miles northwest of Tulsa, would start up after being idle since October 12.

In the same notice it advised well owners that the Barnsdall Refining Corp. would pay the prices posted by the Standard Oil Co. of Indiana, but deduct 12 cents a barrel for gathering oil from the wells and delivering it to the Barnsdall refinery, subject to terms and conditions of the Barnsdall's division order.

The Barnsdall refinery is a 5,000-bbl.-a-day plant, with 2,500 bbls. a day cracking capacity.

Petroleum Section of National Safety Council

The oil industry participates in the direction of affairs of the National Safety Council through the Petroleum Section of the Executive Committee. Members of this section who are serving for the 1938-39 term, are:

General chairman, J. H. Brown, Tide Water Associated Oil Co., New York.

News letter editor, R. S. Huffman, Oklahoma Natural Gas Co., Tulsa.

Engineering committee chairman, G. E. Carpenter, Humble Oil & Refining Co., Houston, Tex.

Health committee chairman, Dr. James W. Long, Gulf Oil Corp., Port Arthur, Tex.

Industrial data sheet chairman, H. E. Dischinger, Shell Petroleum Corp., St. Louis, Mo.

Program committee chairman, H. W. Boggess, Sinclair Prairie Oil Co., Tulsa.

Publicity committee chairman, J. C. Young, Tide Water Associated Oil Co., Tulsa.

Statistics committee chairman, Hadley H. Myers, Sinclair Prairie Oil Co., Tulsa.

Visual education committee chairman, E. D. Murphy, Mid-Continent Petroleum Corp., Tulsa.

Atlantic Division chairman, A. M. McKean, Pan American Petroleum & Transport Co., New York.

Great Lakes Division chairman, J. C. Bernd, Sinclair Refining Co., East Chicago, Ind.

Gulf Division chairman, T. S. Maffitt, Jr., Houston Oil Co. of Texas, Houston, Tex.

Mid-Continent Division chairman, H. T. Markee, Phillips Petroleum Co., Bartlesville, Okla.

Pacific Coast Division chairman, A. L. Anderson, Standard Oil Co. of California, San Francisco, Calif.

Rocky Mountain Division chairman, Boyd V. Osborn, Standard Oil Co. (Indiana), Casper, Wyo.

1938 Compilation of A.S.T.M. Standards On Petroleum Products

The new (1938) edition of the A.S.T.M. Standards on Petroleum Products and Lubricants gives in their latest approved form 61 test methods standardized by the society through the work of its Committee D-2 on Petroleum Products and Lubricants, eight specifications, and two lists of definitions pertaining to materials for roads and pavements. Several new standards are given for the first time including tests for acid heat of gasoline, ash content of petroleum oils, and tests for plant spray oils. The new specifications for Stoddard solvent approved in 1938 are also included. For information and to stimulate comment there is given a proposed method of test for ignition quality of Diesel fuels.

In addition to the large number of standards pertaining to petroleum products, there is also included the current report of Committee D-2 itemizing numerous changes in the standards, and giving the latest revised Diesel fuel oil classification.

Copies of this widely used publication, 311 pages (1938 edition reset in double-column format), heavy paper cover, can be obtained from A.S.T.M. Headquarters, 260 South Broad Street, Philadelphia, Pa., at $2 per copy. Special prices are in effect on orders for 10 or more copies.

British-American Storage Facilities Being Constructed in Alberta

BOW ISLAND, Alberta.—The British American Oil Co. is constructing a warehouse with underground tanks here.

Canadian Research Council Finds Hydrogenation of Coal Too Costly

EDMONTON, Alberta. — Major Gen. A. G. L. McNaughton, president of the National Research Council staff at Ottawa, announces that the council is conducting researches into the possibility of producing oil from Canadian coals by hydrogenation, but that the process, while chemically possible, is too costly under present conditions.

Y.P.F. Plans Construction Of Polymerization Unit

The Y.P.F., state oil fields department of Argentina, has been authorized by presidential decree to construct a combined plant including topping, cracking and polymerization. The proposed plant will include the first polymerization unit in Argentina.

Incidentally, the existing equipment at the La Plata refinery of Y.P.F., where the new installations will be erected, includes topping and cracking units with a total daily crude capacity of 19,000 bbls. per day. The combination topping and cracking plant was completed last year. The estimated cost of the polymerization plant and other installations is placed at 7,350,000 pesos. In view of the urgent need for the additional facilities, and owing to technical reasons, Y.P.F. is authorized to dispense with the usual requirement of calling for public bids, and will therefore be able to enter directly into negotiations with equipment manufacturers.

Ricardo Silveyra, president of Y.P.F., is at Av. R. S. Pena 777, Buenos Aires, Argentina. It is understood that Alco Products, division of American Locomotive Co., has the contract for the polymerization plant.

Canadian Refiner Moves Tanks To New Plant at Calgary

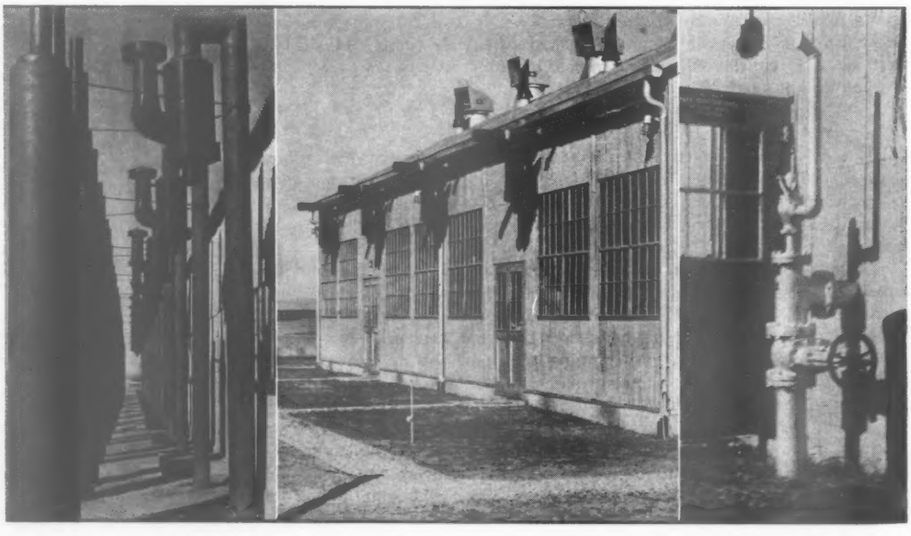
COUTTS, Alberta.—The last of the British American Oil Co. refinery tanks here are being dismantled for removal to the company's new refinery at Calgary.

Railroads Asked to Assist Producers in Alberta

CALGARY, Alberta—Representatives of the Alberta Petroleum Association will visit eastern Canada in December to confer with officials of the two transcontinental railroads in regard to more favorable rates on Turner Valley crude. Efforts will also be made to arrange with the major refining companies at Toronto and Sarnia for taking shipments of approximately 6,000 bbls. daily.

The basic price of Turner Valley crude is around $1.24 and refiners at a tariff board hearing some months ago intimated their readiness to pay $2.02 for crude laid down at Sarnia or Toronto. It is believed a freight rate around $1 a barrel or less, helped by a government subvention, would permit the marketing of Alberta crude in Ontario.

Natural Gasoline



Examples of construction details at compressor stations of the Lone Star Gas Co., United Gas Pipe Line Co., and the Panhandle Eastern Pipe Line Co. are shown in the above illustration. At the left are to be seen the perforated sleeve type exhausts, designed by the gas company engineers, alongside of them are the air intake lines equipped with air filters at the top; back-fire relief valves are at the bottom. In the center is a view of a compressor station caulked for air conditioning which makes it possible to operate with the windows closed; at this plant back-fire safety valves are immediately above the air filters on the intake lines. At the right is to be seen a riser from a pop valve with the opening protected by a covering of thin sheet lead which is adequate for keeping out dirt and water; when popping occurs the lead cover is blown out.

Pipe Line Activity

On the Northern Natural Gas Co. line from Iowa to Minnesota

Petroleum Products Co. Buys Southeastern Kansas Lines

Sale of approximately 105 miles of pipe line gathering system in the southeastern Kansas stripper well area by the Sinclair Refining Co. to Petroleum Products Co. of Chanute, Kans., has been reported.

John R. Manion, vice president and general manager of the pipe line division of Sinclair, said operation of the system by Petroleum Products would begin at once. Frank Young, Chanute, president of Petroleum Products, carried on the negotiations for that company.

Petroleum Products Co., a refining, marketing, and producing organization, operates a refinery at Chanute with a crude capacity of 1,000 bbls. a day and a cracking capacity of 800 bbls. a day.

Mr. Manion said the Kansas company would take 800 bbls. of crude daily from stripper areas principally in Allen County, Kansas.

Northwest Revives Discussion Of Line to Puget Sound

An article in the Bellingham Herald, of Bellingham, Wash., by Frank I. Sefrit, editor, discusses a projected oil pipe line from Montana to the Puget Sound country as a counter move to a proposed undertaking on the Canadian side. He says, in part: "What is more likely to result from this Canadian activity, then, than a renewal of an early proposal to tap the Puget Sound and foreign oil market by an all American line from Montana through to some available point on the Sound? So far as is now revealed this project merely is in the formative stage. Surveys have been made, it is true, and several routes have been considered."

Nothing definitely can be determined in Denver regarding any such project, but another of a similar nature was considered here the past summer. This project proposed to pipe Wyoming black oil to the Pacific northwest, the line to run into Montana and to turn west through the Inland Empire to pick up such additional crude as might be available in Montana. It went far enough to have a reconnaissance survey made by airplane for a projected route, but the investigations indicated oil shipped through such a line would be competitive with California crude and that the market possibilities were questionable. As far as is known nothing further was done other than to sound out possibilities in Washington for federal financial aid.

The Bellingham editor cites a recent offer by officials of Germany to build a line to Vancouver, on the Canadian side, and to take the cost, estimated at $16,000,000, in oil and then turn the property over to the Canadian Government. This brought about the agitation for a line on the American side.

Another angle is that the federal Government is launching an aggressive national defense policy which will take into consideration future needs when sources of supply invulnerable to bombing from airplanes invading from the sea are desirable. The discussion proceeded along the line that the Government should build immense underground storage reservoirs for fuel oil in the Puget Sound district and feed them from some interior point such as Wyoming, where there are abundant black oil reserves. This was considered more in the light of a national defense move than providing a market for Wyoming black oil, although it would have that effect. It is known that inland defense measures are a part of the new program, but it is not known whether the discussed fuel oil reserves figure in them. The Government is building two naval bases in Alaska and has plans for defending this country from any invasion from the Orient by way of Alaska.

Central States Pipe Line To Lay Illinois Extension

SPRINGFIELD, Ill.—A 19-mile 6-inch pipe line from Boyleston in southern Wayne County northeastward to junction with Texas Co. new east-west Lawrenceville line is the latest pipe line development in southern Illinois. Williams Brothers will build the line for Central States Pipe Line Co., starting immediately.

This is another link in the growing network of lines serving the southern Illinois fields. It will give outlet at once to the Aden-Silverman-Weinert pool area, which now moves oil to a loading rack at Fairfield.

Natural Gas News

New York-Pennsylvania Gas Field Operations

COUDERSPORT, Pa., Nov. 28.—While there were no completions during the past week in the Oriskany sand gas fields of New York and northern Pennsylvania three tests reached the sand and probably will be completed this week.

G. L. Cabot, Inc., reached the Oriskany at 3,756 feet on the Charles Crane No. 1 in the Woodhull field of Woodhull Township, Steuben County, and at 3 feet in the sand encountered a show gauging 350,000 feet. Drilling was shut down at this point for casing. This well found the top of the Onondaga at 3,720 feet.

The wildcat test of Clancey and others on the D. Hovey farm in Addison Township, Steuben County, caught 15 feet of sand at 3,932-47 feet and after drilling past that streak encountered another 3 feet deeper at 3,950 feet. At the end of the week this test was reported drilling at 3,972 feet.

The third well to reach the Oriskany during the past week was the Hanley & Bird test on the F. Rook farm in Harrison Township, Potter County, which topped the pay formation at 5,110 feet. It was reported drilling at this depth in the last report.

G. L. Cabot, Inc., found the Tully limestone at 4,400-4,450 feet on the Emma Elliott farm, Harrison Township, one of the eight current Potter County operations. New York State Natural Gas Co. is also drilling in Harrison Township, its test on the Bennie E. Truax farm being down 1,620 feet.

Three of the Potter operations are in Bingham Township where Sylvania Corp. is drilling at 3,975 feet on the Roy Harrison farm, G. L. Cabot, Inc., at 3,294 feet on the Mary Lebar farm and Updegraff and others at 1,492 feet on the Fred Whitney lot. Corrected elevation of the Updegraff well is 1,777 feet.

Belmont Quadrangle Drilling Co. is shut down at 3,227 feet on the R. M. Wolcott farm, a Sharon Township wildcat, and Evjen, Harris and others are rigging up for another wildcat on the A. R. Mitchell farm in Sweden Township, both in Potter County.

McKenry and others are drilling at 4,952 feet on the Stellman farm in Rockland Township, Venango County, one of the most interesting wildcat operations in the state. New Penn-McKean are building the rig to drill a wildcat on the Glenn Taylor farm in Ceres Township, McKean County. Wasson and others remain shut down at 5,358 feet on the E. S. Collins farm in Home Township, Forest County.

Seven other operations are under way in Steuben County, New York, in addition to the two which reached the sand during the past week. Most activity is in Woodhull Township where G. L. Cabot, Inc., is drilling at 2,395 feet in the No. 2 Charles Crane, and is spudding in on the No. 2 George Hotaling and where Clancey is drilling at 685 feet on the No. 5 School District.

In the other G. L. Cabot, Inc., is shut down at 4,865 feet on the Elmer Downey farm, West Union Township, after passing the Tully at 4,623-72 feet; New York State Natural Gas Co. is drilling at 3,385 feet on the Sarah Hammond farm, Troupsburg Township; Van Gelder and others are drilling at 2,425 feet on the Fred Farnham farm, Addison Township, and New York State Natural Gas Co. is spudding in on the F. Boyd farm in Cameron Township.

Five Allegany County wells are drilling at present, three in Willing Township where Cunningham Natural Gas Co. is at 4,351 feet on the Fortner farm; Empire-Rogers at 4,172 feet on the Dan Clark No. 2, and Empire Producing Co. at 1,351 feet on the No. 2 Floyd Wilson. G. L. Cabot, Inc., is drilling at 4,223 feet on the Empire-Rogers farm, Alma Township, and Belmont Quadrangle Drilling Co. at 2,825 feet on the Elwin Livermore farm, Independence Township.

The wildcat test of the New York State Natural Gas Co. on the E. A. Treat farm, Erin Township, Chemung County, is being spudded in.

Canadian Gas Franchises

The Saskatoon, Saskatchewan, city council has decided to submit to vote of the ratepayers a proposal to grant a natural gas franchise to Walter F. Thorne and associates. It is planned to pipe gas from the Vera field in western Saskatchewan, about 100 miles from Saskatoon, if production cannot be secured closer to the city.

A proposed natural gas franchise to the John Sherman Drilling Co. has been tentatively approved by the Pincher Creek, Alberta, town council and will be submitted to the Alberta Public Utilities Commission for approval.

Third Producer Completed In New Egyptian Field

The third producing well has been completed in the Ras Gharib field, newest discovery in Egypt, by Anglo-Egyptian Oilfields, Ltd. The latest completion in the new field discovered during the first part of the current year produced about 2,300 bbls. of oil in 24 hours. The field was discovered by completion of the first flowing well last April. The first well produced at the rate of about 800 bbls. daily and the second well flowed at the rate of 1,400 bbls. per day. The third well, largest completion in the new field, was drilled to 2,490 feet.

GEOLOGY of Allegan County and the Surrounding District in Southwestern Michigan

By R. B. NEWCOMBE
Consulting Geologist, Mount Pleasant, Mich.

Even before Michigan became a recognized oil producing state, Allegan County was in the limelight with important showings of oil and gas. Wells were drilled in the city of Allegan during the nineties and again in 1912. The oil found never proved commercial and when the drilling at Muskegon showed that the producing horizon at Allegan was Traverse instead of Dundee, this district was passed by for several years.

Prior to two years ago when the first of the new fields was found in northern Allegan County, the Traverse occurring from 300 to 400 feet above the Dundee had produced in western Michigan from a few wells in the Muskegon and Hart pools. However, the zones of porosity in this formation were so spotty in all fields throughout the state that operators considered Traverse showings in "wildcat" wells as treacherous to follow up with additional drilling. The outcrop in the northern part of the state has numerous coral reefs which give rise to localized dips within the formation and create porosity of limited lateral extent.

Allegan County is along the Lake Michigan shore in the second tier of counties south of Muskegon. The county seat is Allegan, located in the south central part. Other large cities accessible to the area are Holland on the northwest, Grand Rapids on the northeast, and Kalamazoo on the southeast. The railroads crossing the county are the Pere Marquette in the western part, the Pennsylvania in the eastern part, and the New York Central in the eastern and central part. A branch line of the Pere Marquette goes from Holland to Allegan. The highway facilities are good with two north-south paved roads, U. S. 31 and U. S. 131 and a northwest-southeast road, M. 40, partly paved between Holland and Plainwell. Many of the county roads are "black top" macadam or oiled gravel. The topography is rolling morainic country with elevations varying from 600 to slightly over 800 feet above sea level. In Monterey Township the surface elevations run upward to 924 feet. There are some low muck lands in the northern townships which are given over to celery and onion raising. The effects of the dunes along the Lake Michigan shore are manifest for some distance inland by sandy soil and the dunes and sandy beach features of the former shores of glacial Lake Chicago extend almost as far east as Allegan.

Recent Fields

The Salem field is near Burnips Corners in central Salem Township and only 2 miles from the north county line. It was brought in by Salem Gas & Oil Co. No. 1 Roy Raab, NW SW NW Section 16-4n-13w, on February 7, 1937, for an acidized production of approximately 280 bbls.

The second discovery in 1937 was the Trowbridge pool which is 5 miles south of Allegan and a short distance north of the south county line. This field was found by the James E. Flanigan and F. W. Kehlet Trustee's Ernest Clair, SE NE SE Section 29-1n-13w, on June 19 and produced initially 50 bbls. of oil and 150 bbls. of water. It did not create the stir that the Salem field did because the wells were small and most of them made some water.

Four new fields have been found in northern Allegan County in 1938, all of which though small in area have added substantial production. On February 12, 1938, the Monterey pool was discovered by Sim B. Hood Trustee's Henry Wright, NE SW SW Section 9-3n-13w, with 275 bbls. naturally and acidized initial of 40 bbls. per hour. Close on the heels of Monterey was the Dorr discovery made by Eureka Development Co.'s John Widenfeller, NE NW SW Section 29-4n-12w, on March 1, with 250 bbls. initially after acid. After Dorr came two more discoveries on the same trend as Monterey; the Diamond Springs field around the corner of Salem, Monterey, Heath, and Overisel townships and the Overisel field in Sections 21 and 22 Overisel Township. The Diamond Springs field was brought in by William J. Cline's F. Helmer, NE SW SE Section 36-4n-14w, good for 836 bbls. naturally, choked on July 18, 1938, and the Overisel field was found by Stewart Oil Co. and others Henry Oldebekking, C N half SE SE Section 21-4n-14w, in mid-August with natural initial production of 560 bbls.

The latest discovery in the Allegan district is just south of the county line in Bloomingdale Township, Van Buren County. This booming shallow field came into production during August, 1938, with J. H. Fisher and S. L. McCall No. 1 Wiggins Estate, SE SW SE Section 9-1s-14w, with an output estimated at 1,200 bbls. per day.

Geological Section

All of the Allegan County fields are producing from the Traverse and they range in depth from 1,420 to 1,700 feet. The Bloomingdale field is farther up the regional dip and the total depth of its wells is close to 1,250 feet.

The rocks beneath the glacial drift, which varies from 50 to 250 feet thick in most of the fields, are either Coldwater shale or Marshall formation. In Monterey the glacial drift sometimes exceeds 300 feet in thickness. Over anticlinal structures the Marshall usually has been removed by pre-glacial erosion, and most wells therefore go directly out of the drift into the Coldwater. The wells in the Salem field that penetrated more than 15 feet of Marshall were generally too far-off structure to produce.

The Marshall section penetrated is often only the lower Marshall and the color is not as dark red as farther north. Where present it carries water.

The soft blue and gray Coldwater shale contains hard brown shaly dolomite which is probably from nodules in the shale. The Coldwater "lime" is 350 to 400 feet below the top of the shale and consists of 30 to 40 feet of dolomitic and shaly chert, with thin bands of chert. The lower part of the "lime" is more dolomitic than the upper and contains small amounts of water.

"Red Rock"

The "red rock" beneath the Coldwater shale is widely used as a structural marker, but caution must be exercised because the interval between the "red rock" and the Traverse is not always uniform. Also, there are several streaks of "red rock" in many wells. The top part of this red horizon is dark, reddish, brown argillaceous limestone which may contain broken fossils or even sand grains. It is characteristically residual. Below the top is a variable amount of white, greenish, and light red dolomite and limestone. The base of the "red rock" zone corresponds better with lower formations than the top, but if samples of cuttings are not kept it is not always accurately picked from driller's logs.

The Ellsworth formation consists of a series of gray and greenish gray shales between the "red rock" and the Antrim shale. The beds are variable in composition from argillaceous to limy and sometimes variegated in color. They become increasingly brown near the bottom and there is no sharp break between the Ellsworth and the Antrim.

The Antrim brown shale overlies the Traverse and the color is darkest in its lower part. At the base of the Antrim there is often a layer of dark brown, crystalline dolomite which may correlate with the Squaw Bay limestone of the Alpena region.

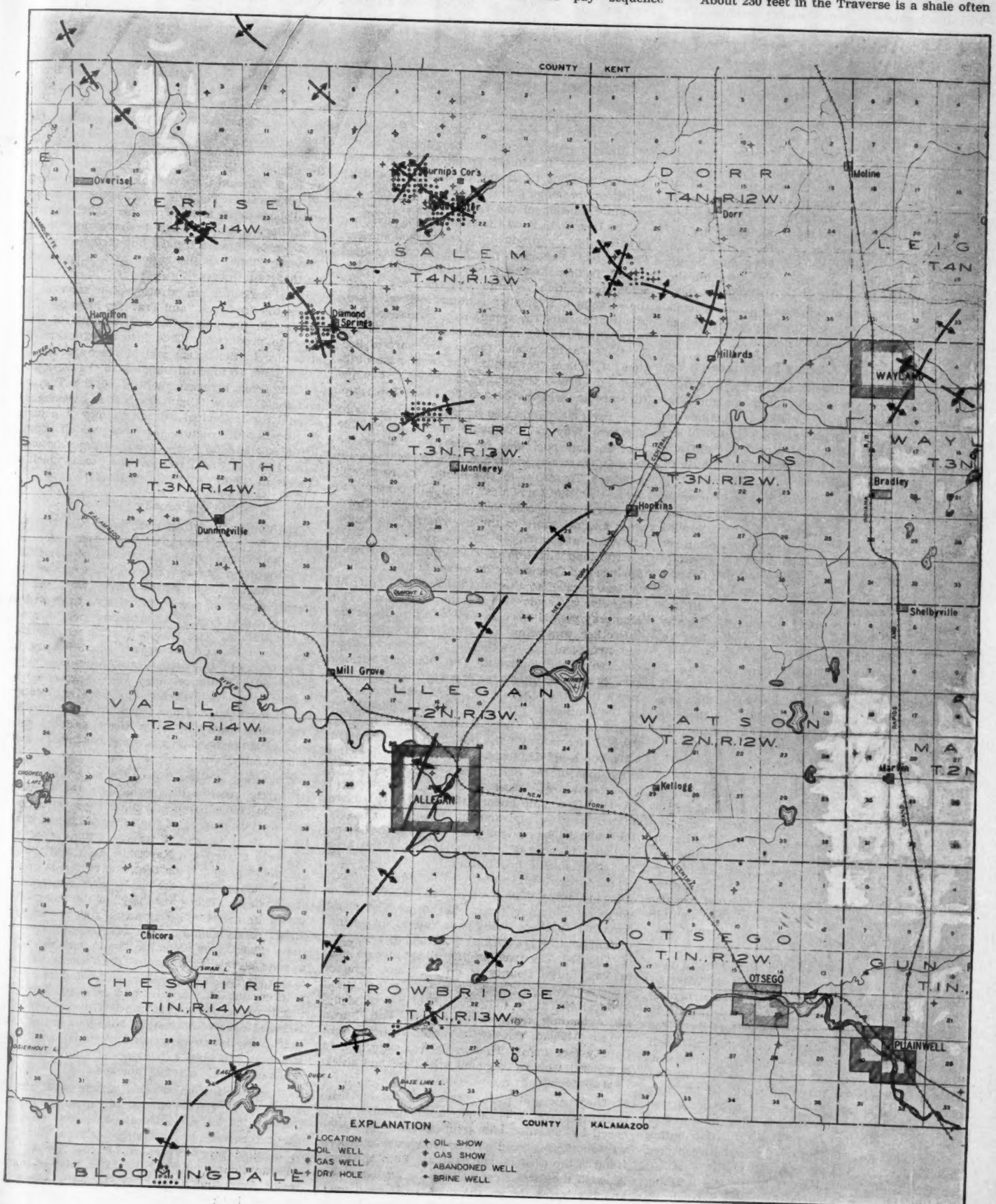
The upper part of the Traverse is gray calcareous shale and the interval between the top of the Traverse formation and the first hard limestone in the Traverse is about 60 feet. At 20 to 30 feet beneath the base of the Antrim are found a few argillaceous limestone beds from 10 to 15 feet thick. Beneath these beds the shale is 20 to 40 feet thick and dark brown shale often occurs directly above the Traverse limestone.

The Traverse limestone consists of gray to buff dolomite, chert, and limestone. The upper part is cherty and the first "pay" which comes

This is the third of a series of articles on Michigan geology by Mr. Newcombe. The first was published in The Oil and Gas Journal of September 15, Page 24, on "Some General Features of Michigan Structural Geology." The second on "Geology of Clare County" was published in the issue of October 6, Page 25.

but a few feet in the "lime" is dolomitic. The porosity is made up of vari-sized dolomite crystal lined cavities in dolomitic matrix. Most of the fields are producing from one "pay" but two porous zones are found in the Salem field and in a few wells in Dorr and Diamond Springs. The lower "pay" is a fossiliferous zone 20 to 30 feet in the "lime," and the Traverse "pay" sequence in Salem is dolomite, chert, limestone, and porous limestone. The thickness of the two Salem pays average 7 or 8 feet.

About 230 feet in the Traverse is a shale often



Section of Allegan County, Michigan

Base Map Michigan Geological Survey

mistaken for the Bell. According to C. Harold Riggs there is no actual Bell shale in Allegan County and the only way the Dundee can be picked accurately is from insoluble residues. The thickness of the Traverse is usually around 300 feet, and in nine wells the beds correlated as Traverse varies from 287 to 346 feet.

The Dundee is not always present but where found it is distinguished by the absence of dolocastic chert and siliceous fossils in the insoluble residues obtained from dissolving well cuttings in hydrochloric acid. A zone of characteristic residues exists just above the Dundee, but the Dundee proper has no distinguishing insolubles except in northeastern Allegan and southern Kent counties where it contains small amounts of sand. The Dundee beds are marked rather by a sharp decrease in insoluble residue content and are between a zone of dolocastic chert above and gypsum and anhydrite below. They may be up to 40 or 50 feet in thickness and rest on the Monroe, which is identified by the type of dolomite and the presence of brown gypsum crystals or anhydrite. So far, no Dundee production has been found in Allegan County.

Drilling and Casing Procedure

The wells in this district are sufficiently shallow so that a derrick is an uncommon sight. The drilling is done with light drilling machines or spudders and even with water well machines. Many of the machines are left standing temporarily where powers are not installed, but most of the wells are pumped with jacks.

The drive pipe is usually 10-inch and the wells are finished with 6⅝-inch producing string, but a few start with 8¼-inch pipe and complete with 5⅞-inch on bottom. The 10-inch pipe is often set through the Marshall and if a good shut-off is obtained, the hole is reduced to 8¼-inch but the casing is not run. However, a short string of 8¼-inch is sometimes necessary to case off the Marshall water. The drill pipe is frequently landed on a limestone "shell" about 80 feet beneath the Marshall-Coldwater contact.

The "oil string" is most often set 20 to 30 feet below the top of the Antrim in the argillaceous limestone beds of the 60-foot shaly section. Sometimes it is placed 50 feet or more in the formation, or even right on top of the Traverse "lime."

Geological Structure

Before many wells had been drilled the easiest way of contouring the area was with broad northeast plunging noses. These still seem the prevailing trends in the southern part of Allegan County, but those in the northern part line up differently in the northwest-southeast axes characteristic of Central Michigan. Close scrutiny shows, however, that the well developed producing structures such as Salem and Dorr exhibit important northeast-southwest components (see map).

Several years ago it was discovered that a deep water well drilled for a creamery in Wayland showed evidence of favorable geological structure. This led to extensive leasing and subsequently to the drilling of numerous shallow test wells for structure in the vicinity. The Pure and Shell were both active in this development and several deep wells followed. These were unsuccessful but it was later proved that they were not far from production and that the test wells were not spaced close enough to delineate the small closures of the region. Another factor probably contributing to their failure was the divergence between "red rock" and Traverse structure.

About the same time Johnson Oil Refining Co. drilled three wells in Trowbridge Township and Wiser Oil Co. tested Gun Plains Township in the southern part of the county, where they found small quantities of oil. These wells also showed some evidence of favorable structure in the Traverse. A few new wells were drilled later near the old showings in the city of Allegan. However, the area did not really come into its own until the discovery of the Salem field.

The Salem field is on a small sharp structure in which off-structure dips are as much as 60 or 70 feet across a 40-acre farm. The long axis of the structure is northwest-southeast across Sections 21, 22, 16 and 17, Salem Township, but the field narrows near the southwest corner of Section 16 and there are two important cross axes. The one in Section 17 is almost straight but the one crossing Sections 15, 21 and 22 is arcuate, and its southwest prolongation is giving rise to an important extension of the field.

The Dorr field is on the same line of structure as Salem, but the producing area is much smaller. Twenty-foot contours indicate that it should spread farther to the north than it does, but actual production is limited to the very top of the structure. A smaller contour interval shows this relationship. The trend of the structure seems to turn more to the north across Sections 19 and 30, Dorr Township and the eastern part of Section 24, Salem Township. The northeast-southwest axes across the long direction of this structure are in Sections 30 and 33, Dorr Township.

A reversal is indicated by the wildcat wells in northern Wayland Township and it is possible that another pool may be picked up along the Dorr-Salem trend either in this township or in Leighton Township to the north. There is evidence that the Dorr-Salem trend will continue to the northwest across Section 1, Overisel Township, and arc more to the northward into southern Ottawa County.

The long direction of the Monterey, Diamond Springs and Overisel fields seems to line up more or less parallel to the Dorr-Salem trend, but the two diverge somewhat to the southeast. The Monterey pool is more east-west in direction than the other producing acreas of the region, and the structural axis of the closure makes an arc concave to the southeast. The Diamond Springs pool has a northwest-southeast axis more to the north than the others, and makes an arc concave to the southwest. It is not limited by dry holes on the south. The Overisel pool is not defined in several directions off the flanks, but the apparent axis conforms in trend almost parallel to the main axis of the Salem field. The extension of the Monterey-Overisel trend in northwestern Overisel Township apparently veers to the north into Ottawa County, and oil showings in one of the wells drilled several years ago east of Holland and in a number of recent tests makes this area one of promising possibilities.

Recent revised regional contouring in southern Allegan County still shows a series of wrinkles or northeast plunging noses. Terracing and slight reversals on these noses have caused oil accumulation in the Trowbridge pool and the vicinity of Allegan. The new prolific Bloomingdale pool in Van Buren County is on the same type of structural feature. These pools seem to be caused by local structures that fork off of a general uplift extending from north central Van Buren across Allegan County to southwestern Kent County (see map). This uplift was suggested in a general way by regional structure and thickness contour maps a few years ago.

The structural picture that one obtains from contouring the Allegan district is greatly influenced by whether one assumes that the northwest-southeast trend or the northeast-southwest trend is the predominant feature. Both apparently exist, the former controlling the northern part and the latter the southern part of the county. The reason for this is difficult to explain. Possibly it is because the younger folding (post Marshall) parallel to the northwest-southeast direction was more effective than the older folding (pre-Marshall) parallel to the northeast-southwest direction toward the center of the basin. However, this does not seem a consistent explanation because the northwest-southeast trends are apparently of minor importance farther to the northeast in northern Kent, western Ionia, and southwestern Montcalm counties. A better explanation is that there probably is a local northwest-southeast zone of faulting in the basement complex across northern Allegan, Ottawa, southern Muskegon, southern Kent, and western Barry counties. Some evidence for this type of structure in the deeper rocks was found in sub-surface studies by F. T. Thwaites across Lake Michigan on the Wisconsin side. The lines of structure contoured on all beds down to the Traverse "lime" in northern Allegan County seem to have predominant northwest-southeast trends, but structure on the Traverse "lime" in the region as a whole trends northeast-southwest.

The variations in stratigraphic interval between the "red rock" and Traverse have been disturbing in predicting the performance of wells close to production. This interval thickens off-structure in the Salem and Monterey pools, but there is not so much thickening in the Dorr pool.

The shale between the top of the Traverse and the Traverse "lime" also varies in thickness around the individual Allegan County structures. On the Salem structure this shale which usually includes about 60 feet of strata ranges between 50 and 60 feet thick, and increases to as much as 86 feet in thickness off the flanks.

Porosity

In Monterey and part of Salem the porosity of the Traverse "pay" is often absent off-structure, particularly to the northwest of the fields. This condition is found also in most of the Central Michigan fields, where "edge" wells off the steeper flanks of asymmetrical structures fail to encounter the regular on-structure porous zones in the Dundee. The reason for this may be that the limestone porosity was formed largely by solution when the structurally high regions in Traverse and Dundee times were represented by islands or shallow shoals. Such an explanation would seem sound if one accepts the premise that circulating waters or wave action and the presence of air is necessary to form continuous solution porosity.

The other important problem regarding porosity in the Allegan district is why the Traverse "pay" is somewhat uniform on these structures and erratic on most of the other Michigan structures. It is evident from the thinning of the Traverse toward the Kankakee arch and the absence of the Bell shale that this region is one in which many Traverse beds are approaching shore phases. The lower "pay" of the Salem field shows broken fossil fragments and re-cemented "lime" sands characteristic of near-shore conditions. The upper dolomitic "pay" may represent a zone formed near shore line where calcium carbonate has been dissolved and dolomite matrix with crystal lined cavities now remains. The regularity with which this upper Traverse porosity is found over southwestern Michigan is evidence that it is due to a general regional condition, which is probably a widespread shore facies at the top of the Traverse limestone.

The preparation of this article was greatly aided by C. Harold Riggs, Michigan Geological Survey district geologist at Muskegon who has spent the last nine years in western Michigan. A detailed progress report on the "Geology of Allegan County" by Mr. Riggs is now in manuscript form and will be available in a mimeographed booklet from Michigan Department of Conservation, Geological Survey Division, Lansing.

ENGINEERING and OPERATING

In This Issue

WELL SERVICING UNITS OF IMPORTANCE IN THE EAST TEXAS FIELD
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Even though similar conditions prevail throughout a large part of the East Texas field, a variety of well servicing units are used there. With the increasing amount of water handled, well servicing and attendant problems assume an increasing importance in production operations in that area.

OHIO RIVER FERRY BOAT HAULS ROTARY DRILLING RIG TO LOCATION
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When a wildcat test was drilled on Diamond Island in the Ohio River between Indiana and Kentucky, rotary drilling equipment was transported by a ferry scow to the location from Mount Vernon, Ind.

SAFETY—WHILE PULLING KELLY FROM RAT-HOLE ..... Page 39

Location of rat-hole, care taken by the driller, and the position of members of the crews have an important bearing on whether conditions are safe or dangerous when the kelly is pulled from the rat-hole.

FRACTIONATING COMPLEX MIXTURES, INTERMEDIATE TOWER SYSTEM
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In the ninth article in a series of ten the author discusses the subject of intermediate towers, involved in multiple-draw petroleum columns.

HIGH TEMPERATURE CHARACTERISTICS OF FIVE SPECIAL STEELS
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This is the first half of an exhaustive study of high temperature characteristics of five steels containing silicon, chromium, and molybdenum. Characteristics of these steels are particularly interesting since refining work is calling for equipment capable of withstanding abnormally high temperatures and pressure.

ERECTION AND MAINTENANCE OF PUMPING AND DRILLING DERRICKS
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Twisted derricks and derricks with low corners cause severe line wear; they increase the chances for getting a twist-off while cleaning out with rotary tools. Hazards in general are increased by these faults when heavy loads are placed on such derricks.

TIME STUDY ON PUMPING WELL ..... Page 53

An unbalanced pumping operation is costly in engine power and to identify such a situation an instrument has been devised which traces the reciprocating motion on a specially constructed graph to depict the extent of unbalance and the point of unequal load.

OPERATING IDEAS ..... Page 48

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Well Servicing Units of In Importance in East Texas

By GEORGE WEBER

With declining reservoir pressures and the growth of new producing problems in the East Texas field, operators look to a steadily increasing volume of well servicing for much of the remainder of the field's producing life. About 6,000 wells are now on the pump, and additional units are going in daily. Plug-back programs are under way on several leases, and the volume of this type of work is expected to increase in the future. In addition, paraffin trouble and completion of new wells augment the uses for servicing equipment in the field.

The variety and scope of jobs for servicing units in the world's largest oil field have stimulated the design of improvements in methods and equipment; in the future East Texas may be considered a proving ground for much that is new in this line. Servicing units, or clean-out, pulling, swabbing or spudding units as they are variously called in the field, have a wide range of usefulness in East Texas. Since all wells in the field are essentially of the same depth, averaging 3,600 feet, it might be expected that all service units would fall in the same class. However, nearly every type and size of such equipment is found in the field.

Types of Units

It is estimated that for every 50 to 100 pumping wells a pulling unit is necessary. The character of the wells of course determines the attention needed. In the closely drilled areas, and generally along the west edge where water is encroaching, the predominance of pumpers entails much servicing. Those sections of the field in the north and south ends where paraffin gives trouble also are points requiring attention.

There are at present over 150 pulling units in service in the field. Nearly all companies with extensive production maintain their own equipment. Smaller operators, and some large operators, whose work does not justify the investment in such equipment, rely on the servicing contractor. A number of contractors throughout the field operate first-class equipment for pulling, cleaning, swabbing and completing wells.

Heavy combination jobs are in use for a wide range of work, while lighter units find application in specialized lines. Since production has been curtailed in recent months, the need for cleaning and servicing wells has not been as great as formerly, and existing work is well taken care of, with the equipment now at hand. The near future will probably see a greater demand for such work, especially if production is increased in the field.

Of the three types of servicing units found in the field: portable skid type, individual tractor type and winch truck with direct power takeoff, the first is by far the most in evidence. Equipped with power units ranging from 35 to 110 horsepower, the skid type is found easy to transport on truck or trailer, and to use either mounted or skidded off and tied down.

Tractor types, while satisfactory from most standpoints, are generally limited in their roadability in as large a field as East Texas. They are being used with success in many programs, however, and the specialized design of many of them makes them useful in a variety of jobs.

Winch trucks, with a permanent winch, operating by direct power from the truck drive shaft are liked by many operators and contractors, due to their smaller initial cost and to simpler operation. The absence of the auxiliary power unit provides additional space and load for other equipment used in working wells.

The commonest jobs for servicing units are pulling rods and tubing. Running paraffin knives and swabbing can be accomplished with light rigs, while plug-back jobs, spudding, cable tool and even rotary drilling is possible with the larger and more complex servicing units. With a large number of wells to keep on production a company or contractor may operate a number of units: a large type to handle the heavier work; light, relatively inexpensive rigs to do swabbing and cleaning. Many of these light units are rigged up in the field, using the same type of power units found on pumping wells, but an increasing number of the newer units are unitized and specially built by the manufacturers of oil field equipment. New improvements are being developed by the man on the lease, the company engineer and the manufacturer.

An 85 horsepower pulling unit loaded to move to next servicing job

Servicing Procedure

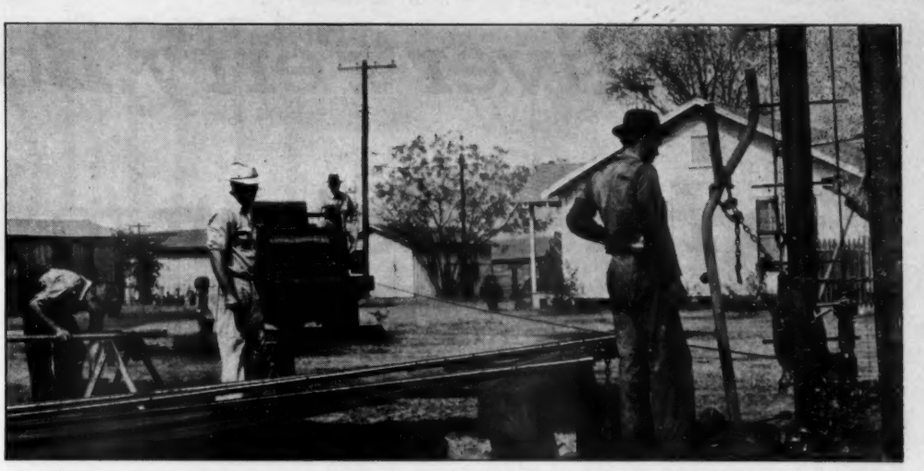
In cases where the well is making enough water to prevent its flowing during a clean out or pulling job, the pulling unit can be set up on the derrick floor. This precludes the need for expensive tractor hold-downs or floor pulleys. Some wells in the borderline class, which may flow on servicing, are killed with water. Many operators avoid this procedure, however, since many wells give trouble when placed back on production, after having been killed with water. In such cases, where the pressure is not too great, dead oil will suffice to hold the well in during the servicing.

On some leases in the field, the tractor hold-downs and floor pulleys are placed to the south of the well regardless of its location, since the generally prevailing wind is from the south. Others are equipped for servicing either from the north or south, giving needed choice in determining the safest direction.

Rod strippers and tubing strippers are standard equipment on flowing wells during the working. High initial cost, and expensive replacement of rubbers in some types of strippers prevents their wider use. In this connection, a more inexpensive device for stripping has been developed by an engineer in the field. It consists of a bell nipple which is screwed to the top of the tubing, and will take various sizes of rods, making allowances for joints. It fits snugly around the string, and the greater the weight of the string in the hole, the tighter

Running rods with a light skid unit mounted on a truck; rod jobs take about four hours on most wells in the East Texas area where uniform conditions prevail

creasing Field



Swabbing in a well with a skid unit, permanently mounted on a truck, which is set back because of fire risk existing while this is being done

the stripping action on the rod. This device is finding increasing acceptance in the field.

The principal improvements sought by operators and contractors of new servicing units are those designed for increased safety. The fire hazard at wells likely to flow during servicing, is getting more attention. While wells of this type are pulled in most cases, with the unit set back 50 to 150 feet from the well, this precaution is still not sufficient to guarantee safety from fire. A wind,

Large skid unit, on a trailer. The vertical tank at the left washes incoming lease gas through crude oil

carrying gas or a spray of oil from the line overhead, will often threaten an area several hundred yards away.

For this reason, operators are equipping pulling units with safety devices to prevent the touching off of gas or oil from the well. Individual shields may be placed over spark plugs on the power units to eliminate hazard from sparks. Some units are in operation now with water jacketed manifolds, further decreasing the danger. Exhausts may be rendered safer by means of muffling in a chamber with the port located away from the well, and by underwater exhaust at the well, and by removal of exhaust gases away from the well through long flexible hose. It should also be noted that the pressure of a direct current generator near the job will present a considerable hazard. A need for an explosion-proof type of generator is felt in connection with work of this type. Further, in water-jacketing manifolds, the jacket should completely cover the manifold, otherwise hot spots nullify any advantage gained by partial protection. Most of the safety work has been done by engineers and mechanics in the field. A strong desire is expressed by them that such features be adapted as standard on equipment of the future.

Some trouble has been encountered in servicing units, as the result of overheating of the powers. This is not due to water-jacketing of manifolds, as was believed in some cases, since that usually combines cooler operation with the increased safety for which it is adopted. In some cases, particularly in tractor type units, the motor is located directly back and below the winch drums, and although a shield is installed to prevent throwing mud or oil, the power unit will overheat. This may be due either to placing the shield too close to the radiator, or to some splashing of mud and oil around the shield and on the circulating system. Generally, these problems are worked out by operators.

Tractor type units have superior features at the well, but their mobility about the field places them at a disadvantage in some cases. An operator may need to service wells in both the north and south end with the same equipment. This renders skid-type units the most economical. Due to the large mileage of improved surface roads through the field at present, use of lugs on tractor units is prohibitive, if they are to be used over a very extensive area. The units are therefore equipped with large pneumatic tires. Tractor units with chain drives which cannot be cut out during movement from one location to another are exposed to considerable wear in transportation. In fact, it is said by some operators that tractor units undergo more road wear than in actual operation at the well. A special clutch for road work would be an important improvement to provide direct drive and prevent excessive chain wear. However, the bevel gear takeoff is not generally favored in comparison with the chain drive.

Although operators have generally been advised against the use of oil on chain drives, automatic oiling has been found to lengthen the life of a unit of this type many years. The dust which is encountered in moving about the field constitutes a considerable wearing factor on chain drives, whether on servicing units or trucks. One operator installed a length of 6-inch pipe in a vertical position over the chain on his tractor unit, filling it with waste oil. The oil dripped continuously through a small valve over the chain, whenever it was in service. This was found to cut wear to a marked degree. It was previously believed that oiling chains tended only to collect dust and to increasing wear, but experience in the field has proven otherwise in East Texas conditions. It has been necessary for operators to add mud guards to the front wheels of factory-built tractor servicing units, and to widen those over the rear wheels. This feature for the protection of the operator during roading will probably be added to new units of the future.

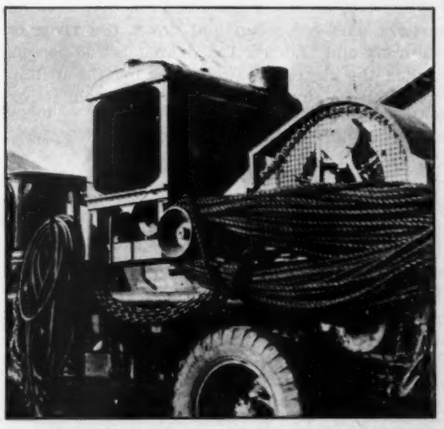
Wide Power Range

Servicing units range in power from 35 to 110 hp., the smaller job being considered sufficient to handle rods, tubing and any cleaning or swabbing work. Most units will run from 60 to 85 hp., and the larger units are generally overpowered for East Texas work. Some utilize the added power in smoother operation during spudding, drilling, setting liners, plugging back, and rotary drilling.

These portable units are finding important application in well completion and plug-back work under way in the field. In new wells drilled on the west edge of the field where the water table is high, or on the east edge where the sand is thin, the common practice is to set the oil string above the sand and to drill through the cement plug into the top of the sand. Rotary tools on these servicing units are used to advantage, since they give better control in taking in just enough sand. The same is true in plug-back recompletions, where only 6 inches of sand is desired in the bottom of the plugged-back well.

Work of this type is being handled efficiently by a large 110-hp. double drum unit, mounted on a trailer. It has all of the safety improvements discussed. In addition, it operates on dry gas from the lease. The gas is handled through a vertical volume tank where it is washed through crude oil to remove any entrained foreign material. It is brought to proper carburetor pressure by two regulators installed on the unit. This set-up is equipped to drill with rotary tools to a depth of 4,000 feet, but its use is restricted in East Texas to cable tool drilling and spudding.

With ordinary equipment handled by an experienced crew, a rod job in East Texas requires but half an eight-hour day, including setting up and moving off. Tubing jobs generally run one and one-half days. As this type of work gains in volume, more specialized equipment and crews will probably cut the average time considerably.

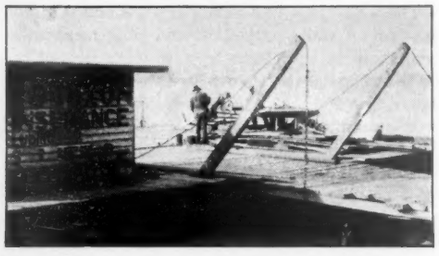


This truck mounted unit, characteristic of the majority of servicing units in East Texas, is operated by a contractor in Gladewater

Ohio River Ferry Boat Is Used to Haul Rotary to Location

By HARRY SIMONS

Oil operators in Illinois, Indiana, and Kentucky are overlooking no possibilities with one of the most interesting wildcats drilled recently, being the Lockett & Gish No. 1 Diamond Island in the Ohio River about 5 miles from the Posey, Indiana, field. Kentucky gets credit for the test as the island is within the boundaries of Henderson County, Kentucky, but the

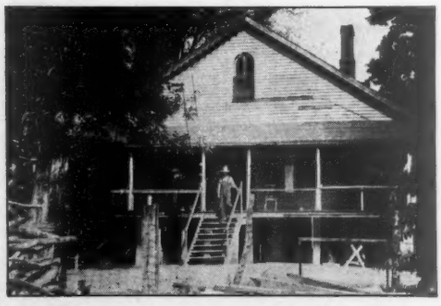


Repairing the ferry scow at Mount Vernon, Ind., after hauling derrick and equipment to Diamond Island location

operations were carried on from Mount Vernon and Evansville, Ind.

Diamond Island is a major topographical feature, covering about a 4-square-mile area and appearing even on road maps. Seventeen hundred acres on the island are under cultivation, the principal crop being corn which grows very well in the alluvial soil. Doves and squirrels are plentiful, but the quail and rabbits were killed by the big flood in January and February of 1937 when the water reached to the eaves of the porch roof of the main house on the island. Population of the island varies from 2 to 25, depending on the season; contact with the mainland is by boat, most of the travel being between the island and the Indiana side of the river.

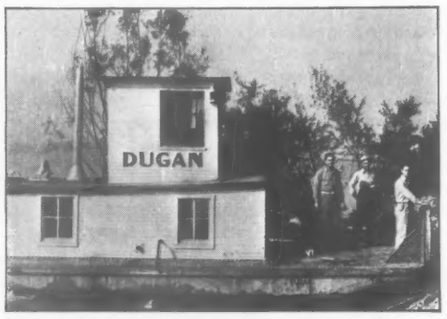
The test attracted the attention of recreation boaters who travel up and down the river on Saturday and Sunday. Approximately 100 persons visited the rig every Sunday during the drilling operations. Many more came by automobile from



Main house on Diamond Island. The water covered the eaves of the porch roof during the flood of 1937

Evansville and Mount Vernon and crossed the river on the ferryboat Dugan, which was leased by the Iron Drilling Co., contractors of Tulsa, for carrying the machinery, supplies, and drilling crews to the job. One member of the crew stayed on the island, but the remainder lived in Mount Vernon during the drilling of the test.

Derrick and drilling machinery were hauled by the Dugan from Mount Vernon, Ind., as that was the closest point having a loading dock suitable to such heavy equipment. A 32- by 60-foot ferry scow was used to carry the trucks on which the equipment was hauled; the landing dock from the Kentucky shore was carried to the island for the unloading of the trucks. The Dugan, powered by a two-cylinder, 40-hp. engine and driven by a 7 by 8 paddle wheel, made one 18-mile trip up the river and back each day. The ferry scow re-



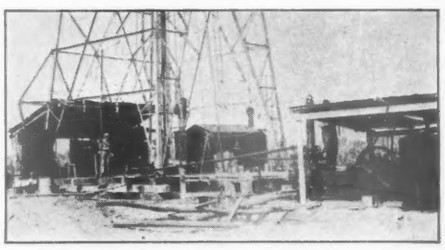
The morning tour crew, M. D. McCoy, driller, Jim Call and Pete Pryor, landing on the Indiana shore of the Ohio after being ferried across the river by J. F. Kelley, captain of the Dugan

quired extensive repairs after the moving operation as it was not designed originally for the carrying of such heavy loads.

From the disembarking point to the well site was approximately seven-eighths of a mile over a fairly passable sand road. The trucks delivered their loads to the location and then returned to the ferry for the trip back to Mount Vernon. After the rig was assembled and drilling started, the Dugan moved to island and small supplies were hauled by car and truck to the bank of the Ohio just opposite the island road where they were picked up by the Dugan and carried across the river. Gasoline consumed in drilling to a depth of 2,400 feet totaled 4,500 gallons. This was ferried up the river from Mount Vernon and unloaded at the road, where it was picked up by a team and wagon and hauled into the location. Gasoline for the rest of the well was delivered to the river bank and ferried across at that point.

Two tons of artificial mud (Aquagel and Baroco) were required to set the 174 feet of 10¾-inch surface pipe. This was hauled in with the rig. Approximately one-quarter mile of 2-inch pipe was laid from the rig to the river to get water for the drilling fluid.

A 96-foot steel derrick was used to drill the test. Hoist for the job was a Cardwell K L 96, a remodeled drilling-in unit which was put into service by the Iron Drilling Co. in Kansas for completion of wells there. For the work in Illinois two catheads and a rotary sprocket were added.

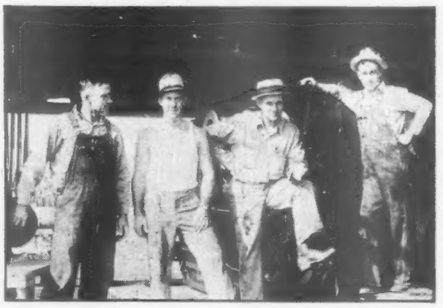


General view of the rig used to drill the No. 1 Diamond Island in the Ohio River

The Diamond Island well was the third test drilled with the equipment after its conversion to a rotary. Power for the hoist was delivered by a Buda GF 638 gasoline motor having a maximum capacity of 120 hp. and a continuous capacity of 90 hp. Electric light was furnished for the night crews by a 1,500-watt, 110-volt Kohler generating plant.

For circulation of the drilling fluid a 6- by 10-inch Gardner-Denver power pump, driven by a 120-hp. Climax Blue Streak engine, was used. This pump operates at 38 strokes per minute. Derrick equipment included a four-sheave cable-tool crown block, three-sheave McKissick traveling block, 150-ton B. J. hook, and a 4-inch Gumbo Buster swivel.

Under the surface pipe, a 7⅞-inch hole was drilled with rock-bits; coring was done with 6½-inch heads. Three-inch drill stem with a 30-foot by 6-inch drill collar was used. Pipe used to 1,800 feet was of 30-foot length but when that depth



Crew on the daylight tour on the No. 1 Diamond Island at Lockett & Gish; left to right: Lloyd Graham, O. S. Newman, Harry Davison, driller, and A. J. Martin

was reached a shutdown of two days was necessary as more pipe was required to drill deeper. The additional pipe was 20-foot joints.

Rigging up of the test started on September 8 with drilling of the surface hole starting two days later. Halliburton Oil Well Cementing Co.'s truck was ferried up from Mount Vernon, Ind., for the cementing of the surface string. Drilling under the surface started on September 14 and two weeks later operations were delayed until more drill pipe could be ferried in.

Drillers reported that conditions were very similar to those encountered in Illinois with the exception that the glacial drift was replaced by alluvial deposits. The alluvium was more unconsolidated and had a greater tendency to cave than the glacial drift common to the Illinois basin. Ten-pound mud was used to stop the caving of the gravel and sand until the surface pipe could be set and cemented. The Pennsylvanian section was thicker than in the Centralia area but thinner than the middle Illinois basin fields. The Benoist was topped at 2,409 feet.

Thirteen rock bits were used from 150 to 2,403 feet for an average of 174 feet per bit. A bit run in at 1,798 feet appeared to be worn out and was pulled after making 45 feet, but was found to be in fairly good condition when examined on the derrick floor. It was put back in the hole at 2,090 feet and made 100 more feet of hole. Below 2,190 feet the drilling was considerably harder and the bit used to drill the 11 feet from 2,258 to 2,269 was badly worn. At 2,265 feet the drillers got a break, 138 feet being made with one bit.

No production was found in the upper Mississippian sands and the McClosky was also dry. Drillers were still in lime formation at 2,800 feet when it was decided to abandon the test on October 3.

Had oil been discovered on Diamond Island the ferry boat business from the Indiana shore would have required the building of a road and landing dock. It would have been open competition as no application for a franchise at that point on the river had been made up to completion of the well.

Profiting by their experience gained by moving the rig into the location, the drilling crews required only three days to dismantle the rig and ferry it to Mount Vernon.

With the concentrated exploration campaign now in progress, more island and river bank operations can be expected. At present there are many rigs operating on the shores of the Green River in Kentucky. The difficulties of drilling near or in a fresh water stream will probably be overcome the same as the moving problem on the Diamond Island job.

Portable pulling unit used in Illinois oil fields

SAFETY — While Pulling Kelly Out of Rat-Hole

Safe handling of the kelly joint and swivel includes not only the position and speed of the men but the location of the rat-hole and the judgment and watchfulness of the driller.

Choice of location for the rat-hole is limited by the position of the machinery and the necessity of drilling most rat-holes with the rotary table driven from the drawworks. In a few localities it is very easy to turn the kelly with chain tongs and get the rat-hole drilled in a few minutes.

In the Mid-Continent fields where pipe is racked in front of the drum, the rat-hole is located to the right as in the photograph. Most drillers locate the rat-hole 4 or 5 feet in from the side of the derrick. Getting any further toward the edge of the derrick floor would not allow room for the rotary table while drilling the rat-hole, swinging the kelly to place it in the rat-hole would be a difficult operation, catching the swivel bail with the hook would require more time, and the kelly would not slide in the rat-hole smoothly and the possibility of the swivel bail jumping the hook and dropping the kelly would be increased. A location nearer the derrick center would be dangerous as the blocks might hit the swivel bail, breaking it from the kelly joint. When making a trip, cautious crews pull the mud hose around to the right, thus placing the swivel bail out of reach of the traveling block.

On short (double) derricks the rat-hole is located between the rotary sills because of the danger of striking the derrick-man's board or tong board and knocking them out of the derrick.

Letting the kelly in the rat-hole or withdrawing it at a rapid speed is frowned on by tool pushers and contractors and most drillers now realize that it is a risky business. If the safety latch on the hook is a little loose and the kelly binds in the rat-hole and pauses a moment in its downward descent, the swivel bail can come off of the hook. The net result of this misfortune is the kinking of the kelly.

The crew in the picture is just completing a connection and preparing to screw the kelly joint on the drill stem. The driller is watching the kelly being pulled from the rat-hole and in a few more seconds he will glance up to make sure that the blocks are not about to strike the fourble or tong board. The derrick-man is standing back of the kelly with his left hand holding the pull-back hook in a hole in the roller-bearing drive bushings. The cathead man (not seen in the photograph) has one wrap of the pull-back rope around the cathead and will snub the bottom of the kelly as it swings toward the center of the derrick. The driller will watch that the derrick-man keeps the hook in place and that there is a tension on the pull-back rope; if either operation is not being performed he will shut down the rig until he checks the situation.

The pipe-racker, left center, has doped the tool joint box and is watching for the moment when he will swing into action. As soon as the bottom of the kelly clears the rat-hole he will step forward with his right foot, meet the bottom of the kelly with his right shoulder and steady it while the driller lowers it into the box. The back-up man, right center, has his rope coiled around the box of the drill stem and is holding it with his right knee. He also will meet the kelly with his right shoulder and help steady it while it is lowered.

Most new men are started in the back-up position and for some reason most of them insist on standing at a point about 45 degrees to the right of the back-up man in the picture. This places them in the line of the swing of the kelly and between the rat-hole and the drill stem. They are then in an ideal position to be mashed between the swinging kelly and the drill pipe in case the pull-back rope should break or the hook on the end of it slip from the hole in the drive bushing. As a demonstration many drillers will shut down the rig, instruct the cathead man to not snub the kelly, call the new man to them and then proceed to pull the kelly from the rat-hole. When the new man sees the force with which a free-swinging kelly strikes the drill stem, he gets some idea of what would be the result in case he was between them.

The back-up man in the photograph knows his chores and how to perform them. Notice that the tail of the spinning rope is in a straight line so it will run smoothly through his hands.

Fractionating Complex Mixtures

Intermediate Towers

By W. L. NELSON

The type of tower system that is defined as an intermediate tower is illustrated in Figure 13. In such a column section liquid products are withdrawn at both the top and bottom of the column—and hot internal reflux flows into the top and out of the bottom of the column.

In deriving equations for such a system, difficulty arises because the reflux that flows into the top of the column does not have the same composition as the overhead-vapor that arises to the next column above nor is it in equilibrium with the overhead product. In actuality, it is in equilibrium with the vapor that arises from the plate-above-the-top-plate—but such a composition is defined mathematically with such difficulty that in deriving the equations recorded in this article, it was decided to assume that the reflux composition would be defined as

$$x_R = \frac{y_1}{k_1} = x_1 \qquad (34)$$

Recall that in the equations thus far published, the reflux composition was given as

$$x_R = y_1$$

This latter condition exists in most towers, i.e., the overhead product is condensed and part of it is used as reflux.

Neither of the above conditions, that is $x_R = x_1$ or $x_R = y_1$, is exactly correct, but it is necessary to assume one or the other of these conditions or the equations become hopelessly complicated. As far as degree of fractionation is concerned, either assumption gives about the same results, as shown in Figure 14; however, the yields of products are considerably different for the two assumptions. Thus, in studying the separation of kerosene and gas oil from the crude oil studied in Parts 3, 4 and 5 of this series[1 2 3] it was found that the yields were as follows:

	Kerosene	Gas oil
Assuming $x_R = y_1$	22%	15%
Assuming $x_R = x_1$	20%	12%

The actual degree of fractionation and yield of products is between these extreme cases, and hence the easiest thing to do in approximate studies would be to use the regular equations such as Nos. 27 to 31 which were presented in Part 2 of this series,[5] always recalling the discrepancies mentioned above.

As indications of the type of equation obtained when assuming $x_R = x_1$, Equations 35 to 37 are shown for 2-, 3- and 4-plate towers. These are far more complicated than the corresponding[5] Equations 27 to 29 which were based on $x_R = y_1$.

The symbols used in these equations are the same as those used in all other equations published in this series, namely:

R = mols internal (or hot) reflux at top based on a heat balance and including no excess reflux for the plates below the intermediate column under consideration

eR = actual reflux (internal or hot), mols

e = ratio of actual reflux to the reflux that disappears in the column

D = mols overhead product

b = reflux ratio eR/D

C = liquid-volume-percentage of any component in feedstock

(Continued on Page 52)

In this the ninth of a series of 10 papers the subject of Intermediate Towers, such as those involved in multiple-draw petroleum columns, will be discussed. To our knowledge no studies of this type of tower system or method of designing them, has ever been published. The equations have been arranged in such a form that they are dependent on only the known yields and compositions of the products collected above the intermediate tower under consideration and the composition of the feed.

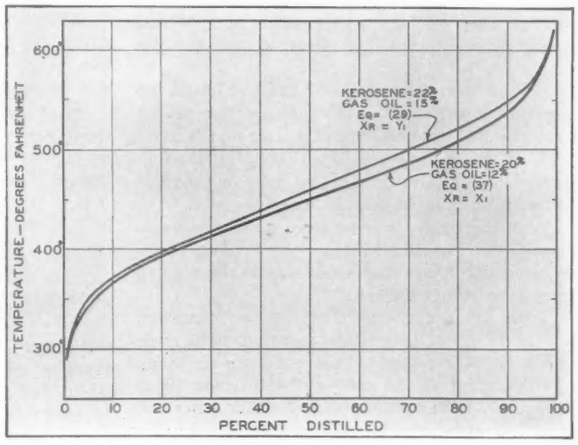


Fig. 14—Distillation curves of kerosene computed for Xr = Y1 and Xr = X1

2-plate tower:

$$\frac{X_2}{X_1} = \frac{100C - wz}{g + hJ\frac{k_1}{k_2}\left[\frac{\frac{D}{R}+e}{\frac{D}{R}+e-1} - \frac{1}{k_1}\frac{1}{\frac{D}{R}+e-1}\right]} \qquad (35)$$

3-plate tower:

$$\frac{X_3}{X_1} = \frac{100C - wz}{g + hJ\frac{k_1}{k_3}\left[\frac{\frac{D}{R}+e}{\frac{D}{R}+e-1} - \frac{1}{k_1}\frac{e}{\frac{D}{R}+e-1} + \frac{1}{k_2}\frac{e\left(2\frac{D}{R} - \frac{2R}{eD}+1\right)}{\left(\frac{D}{R}+e-1\right)\left(2\frac{D}{R}+2e-1\right)} + \frac{1}{k_1k_2}\frac{(2e-3)}{\left(2\frac{D}{R}+2e-2\right)\left(2\frac{D}{R}+2e-1\right)}\right]} \qquad (36)$$

4-plate tower:

$$\frac{X_4}{X_1} = \frac{100C - wz}{g + hJ\frac{k_1}{k_4}\left[\frac{\frac{D}{R}+e}{\frac{D}{R}+e-1} - \frac{1}{k_1}\frac{e}{\frac{D}{R}+e-1} + \frac{1}{k_2k_3}\frac{e(3e-3)\left(3e-2+\frac{eR}{D}\right)}{\left(\frac{D}{R}+e-1\right)\left(3\frac{D}{R}+3e-1\right)} + \frac{1}{k_1k_2}\frac{(3e-2)}{\left(3\frac{D}{R}+3e-3\right)\left(3\frac{D}{R}+3e-1\right)}\right.} \qquad (37)$$

$$\left. + \frac{1}{k_3}\frac{(3e-3)\left(\frac{D}{R}+e\right)}{\left(\frac{D}{R}+e-1\right)\left(3\frac{D}{R}+3e-2\right)} - \frac{1}{k_1k_3}\frac{e(3e-3)}{\left(\frac{D}{R}+e-1\right)\left(3\frac{D}{R}+3e-2\right)} + \frac{1}{k_1k_2k_3}\frac{(3e-3)^2}{\left(\frac{D}{R}+e-1\right)\left(3\frac{D}{R}+3e-2\right)\left(3\frac{D}{R}+3e-1\right)}\right]$$

HEAT CHARACTERISTICS of 5 Silicon-Chromium-Molybdenum Steels

By A. E. WHITE, C. L. CLARK* and W. G. HILDORF†

In the design of high temperature equipment, permissible stresses are at present usually based upon the creep characteristics of the proposed steels at the given operating temperatures. This practice, in so far as it goes, is essentially correct for there is no question but what steels exhibit plastic, rather than elastic, characteristics at the more elevated temperatures.

It should be realized, however, that the creep characteristics by themselves do not necessarily give a complete indication of a steel's suitability for a given application. It is evident, for example, if the surface stability of the steel is not sufficient, the cross-sectional area will be reduced and the unit stress increased. Likewise under certain conditions of insufficient surface or structural stability the steel may fracture without appreciable deformation. It is entirely possible therefore that a steel with a high creep resistance may, under certain conditions, actually give a shorter life in service than one with an appreciably lower creep strength.

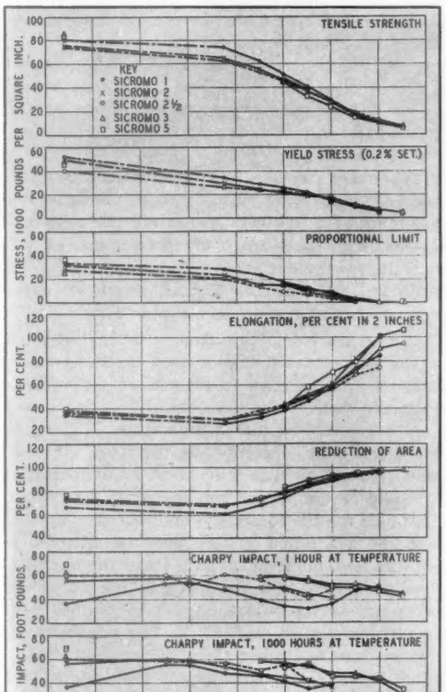


Fig. 1—High temperature tensile and impact properties of the Sicromo steels

The usual creep tests results give little information with respect to the influence of lack of surface or structural stability on the load-carrying ability or on the ductility characteristics. It is believed, however, that this additional information can be obtained from the stress-rupture results. This latter test likewise provides a more simple means for determining design stresses for certain types of high temperature equipment.

Realizing the importance of surface stability for satisfactory high temperature performance. steels were developed which would possess a greater resistance both to oxidation and to sulfide corrosion. This increased resistance was obtained through the proper combination of silicon and chromium. The present paper will describe their high-temperature properties and discuss their stability under the influence of time, temperature and stress.

Steels Considered

The steels considered were furnished by the Timken Steel & Tube Division of the Timken Roller Bearing Co. and all were taken from commercial basic electric-arc heats. Each steel was available in the form of hot-rolled 1-inch bars, and, prior to machining the necessary test specimens, they were given the same heat treatment, namely, an anneal at 1,550° F. Data with respect to their chemical composition, grain size, heat treatment and Brinell hardness are given in Table 1.

This article is published in two parts. The second half will appear in the next issue.

The five steels contain essentially the same amounts of manganese, sulfur, phosphorous and molybdenum and, with one exception, the silicon content is of the same order of magnitude, ranging from 1.32 to 1.57 per cent. The chromium content, however, varies from 1.30 to 4.83 per cent. There is likewise a slight variation in th carbon content, the range being from 0.09 to 0.15 per cent. While the variation in the carbon content may influence the room temperature physi-

TABLE 1—CHEMICAL COMPOSITION, GRAIN SIZE, HEAT TREATMENT AND BRINELL HARDNESS OF SICROMO STEELS

Steel designation	Chemical composition, per cent C	Mn	Si	S	P	Cr	Mo	McQuaid-Ehn grain size	Heat treatment °F.	Brinell hardness
Sicromo 1	0.15	0.42	1.37	0.016	0.017	1.30	0.54	6 to 8	Ann. 1,550	156
Sicromo 2	0.09	0.41	1.32	0.017	0.010	2.06	0.51	4 to 6	Ann. 1,550	146
Sicromo 2½	0.11	0.41	0.78	0.013	0.012	2.50	0.50	6 to 8	Ann. 1,550	143
Sicromo 3	0.12	0.43	1.57	0.014	0.008	3.26	0.50	4 to 6	Ann. 1,550	159
Sicromo 5	0.10	0.38	1.55	0.016	0.009	4.83	0.51	4 to 6	Ann. 1,550	156

TABLE 2—TENSILE PROPERTIES AT INDICATED TEMPERATURES OF SICROMO STEELS

Steel designation	Temperature, °F. 80	750	900	1,000	1,100	1,200	1,300	1,400	1,500
Tensile Strength									
Sicromo 1	80,375	74,125	62,625	51,560	40,375	29,275	18,900	11,600	.....
Sicromo 2	75,125	64,375	55,450	46,050	36,350	27,375	17,625	10,875	.....
Sicromo 2½	74,425	62,450	53,000	45,125	36,500	28,600	19,600	12,900	.....
Sicromo 3	84,875	.....	.....	47,440	38,250	27,500	18,250	12,375	7,550
Sicromo 5	82,100	.....	.....	45,500	33,575	24,000	15,000	10,340	7,100
Yield Stress (0.2 Per Cent Set)									
Sicromo 1	52,125	34,625	28,625	26,150	21,875	15,250	9,900	6,000	.....
Sicromo 2	49,600	30,000	24,500	22,000	19,500	18,250	10,000	6,000	.....
Sicromo 2½	40,650	26,600	24,300	22,850	20,000	16,000	11,500	7,500	.....
Sicromo 3	48,125	.....	.....	25,125	21,950	16,250	10,000	7,625	4,275
Sicromo 5	45,000	.....	.....	25,625	20,250	15,000	10,000	5,750	4,000
Proportional Limit									
Sicromo 1	33,250	28,500	23,000	17,000	12,500	7,875	0	0	.....
Sicromo 2	32,500	23,000	15,000	14,250	10,500	9,250	2,000	0	.....
Sicromo 2½	27,500	20,000	13,000	9,375	6,875	3,250	0	0	.....
Sicromo 3	24,375	.....	.....	15,000	11,875	8,750	2,500	–0	0
Sicromo 5	36,250	.....	.....	15,000	8,000	5,500	0	0	0
Elongation Per Cent in 2 In.									
Sicromo 1	34.0	27.25	32.5	38.5	46.5	58.25	73.75	84.75	.....
Sicromo 2	37.0	30.4	35.75	42.0	49.5	61.0	82.0	100.25	.....
Sicromo 2½	38.5	30.5	38.25	42.5	50.25	57.0	69.0	75.0	.....
Sicromo 3	35.75	.....	.....	43.75	50.75	59.0	71.25	90.5	95.0
Sicromo 5	38.75	.....	.....	42.75	58.5	70.75	79.0	101.0	106.75
Reduction of Area, Per Cent									
Sicromo 1	66.65	60.95	68.15	75.3	84.3	89.2	94.0	97.9	.....
Sicromo 2	73.3	68.5	73.55	79.9	86.45	91.45	95.5	98.3	.....
Sicromo 2½	72.55	67.35	75.15	79.85	85.4	90.0	93.6	96.0	.....
Sicromo 3	73.9	.....	.....	81.65	88.05	91.4	93.95	96.8	98.5
Sicromo 5	76.2	.....	.....	83.6	89.95	93.65	95.65	97.6	98.7

Note—Each reported value is the average of two tests in good agreement.

*Director and research engineer, respectively, department of engineering research, University of Michigan.
†Chief metallurgical engineer, Timken Roller Bearing Co.

cal properties to some extent, it is not believed to be sufficient to appreciably influence the high temperature characteristics.

Since chromium is the chief variable in the chemical composition and since the heat treatment is the same in all cases, the results will show the influence of variation in the chromium content on the high temperature characteristics of steels containing greater than normal silicon.

Tensile Properties

The tensile properties of these steels at room temperature and certain elevated temperatures are summarized in Table 2 and shown graphically in Figure 1. In so far as the room temperature properties are concerned, variations in the chromium content, over the range considered, have little influence on any of the characteristics. The strength of Sicromo 2½ steel is somewhat below that of the remaining steels but this is without doubt due to its lower silicon content. For the remaining four steels the range in the tensile strength values is from about 75,000 to 85,000 pounds, in the yield stress values, from 45,000 to 52,000 pounds, and in the Brinell hardness from 146 to 156. Sicromo 3 steel possesses the maximum tensile strength and hardness, Sicromo 1 steel the maximum yield stress, and Sicromo 5 steel the highest proportional limit values.

In the case of the room temperature ductility characteristics, the range in the elongation values is from 34 to 38.7 per cent, and in the reduction of area from 66.7 to 76.2 per cent. Increased chromium content appears to improve the ductility for Sicromo 5 steel possesses the maximum values and Sicromo 1 steel the minimum.

The differences in the high temperature tensile properties of these steels are of the same order of magnitude as those existing at room temperature. Over the temperature range of 750 to 1,200° F. Sicromo 1 steel possesses the highest tensile strength, but its superiority over the steel possessing the minimum value, Sicromo 5, is only of the order of 5,000 to 7,000 pounds. At the higher temperatures, Sicromo 3 steel is the superior one. Likewise with the yield stress and proportional limit values, Sicromo 1 steel is superior at temperatures up to 1,100° F., Sicromo 2 steel at 1,200° F., and Sicromo 3 steel at 1,400 and 1,500° F.

All of the steels possess a very high degree of ductility at the elevated temperatures, the elongation increasing rapidly, and the reduction of area

TABLE 3—CREEP CHARACTERISTICS OF SICROMO STEELS AND CORRESPONDING STEELS WITH 0.50 MAXIMUM PER CENT SILICON

Creep Rate = 0.01% per 1,000 Hours

Temp. °F.	Sicromo 1	DM-2	Sicromo 2	2 Cr. Mo.	Sicromo 2½	Sicromo 3	Sicromo 5	4-6 Cr. Mo.
800	.....	.....	.....	.....	20,000	.....	.....	.....
900	15,100	13,250	9,900	14,500	.....	.....	.....	11,500
1,000	4,300	6,700	5,700	5,600	5,400	5,400	5,450	7,600
1,100	1,525	2,400	2,400	4,000	.....	2,500	2,600	3,200
1,200	720	780	1,400	1,500	1,000	1,800	1,600	1,700
1,300	.....	.....	.....	.....	.....	.....	920	890

Creep Rate = 0.10% per 1,000 Hours

800	.....	.....	.....	.....	25,000	.....	.....	.....
900	21,750	20,500	13,800	19,300	.....	.....	.....	15,200
1,000	9,200	12,000	7,800	8,900	8,600	8,700	8,700	10,100
1,100	3,800	4,300	4,600	6,000	.....	5,100	4,800	5,800
1,200	1,800	1,600	3,700	3,500	2,300	3,550	2,900	2,800
1,300	.....	.....	.....	.....	.....	.....	1,450	1,950

	C.	Mn:	Si.	Cr.	Mo.	Heat-treatment
DM-2	.10	.36	.25	.97	.55	Ann. 1,550° F.
2 Cr. Mo.	.11	.45	.42	2.08	.50	Ann. 1,550° F.
4-6 Cr. Mo.	.10	.45	.18	5.09	.55	Ann. 1,550° F.

somewhat more slowly, as the temperature is increased beyond 750° F. In general Sicromo 1 steel possesses the minimum values at temperatures

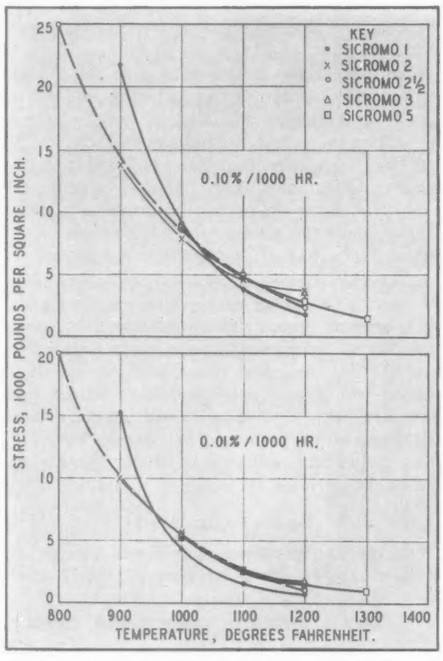


Fig. 2—Creep characteristics of the Sicromo steels

up to 1,100° F. and Sicromo 2½ at the more elevated temperatures. This would indicate both chromium and silicon to increase the high temperature ductility characteristics.

The results presented definitely show that, at all temperatures considered, these high silicon steels possess a very suitable combination of strength and ductility on the basis of the short-time tensile tests.

Impact Resistance

The Charpy impact resistance of these steels, at both room and elevated temperatures, is likewise shown graphically in Figure 1. Standard keyhole notch specimens were used and, in the case of the high temperature tests, one set of specimens was held at temperature for one hour, and another set for 1,000 hours, prior to breaking in order to determine the influence of the time factor. All tests were conducted in triplicate.

The room temperature shock resistance increases rapidly from 36 to 53 foot-pounds, as the chromium is raised from 1.30 to 2.06 per cent, and more slowly, from 56 to 69 foot-pounds, as the chromium is further extended to 5.0 per cent. The minimum resistance of 36 foot-pounds is, however, ample for commercial applications.

Temperature has the same general influence on the impact resistance of each of these steels. With the first increase in temperature, the shock resistance either remains constant or increases, then decreases as the temperature is further raised and again increases at the more elevated temperatures. As was true at room temperature increased chromium content increases the impact resistance for the Sicromo 3 and Sicromo 5 steels have the maximum values, and the Sicromo 1 steel the minimum values, at most of the temperatures considered. On the basis of the one hour heating tests the minimum value obtained was for Sicromo 1 steel at 1,100° F. The minimum resistance was, however, 32.5 foot-pounds, which would be ample for commercial applications, and furthermore it was raised to 35.0 foot-pounds as the time of heating was increased from 1 hour to 1,000 hours.

The time factor has little influence on the hot impact resistance of these steels over the temperature range considered. With Sicromo 1 steel the resistance is somewhat increased as the heating time is extended from 1 hour to 1,000 hours. The resistance of the Sicromo 3 and Sicromo 5 steels at 1,500° F. is decreased as the heating time is extended. This decrease is believed to be due to the pronounced spheroidization which occurs at this temperature. The minimum Charpy value obtained was, however, still of the order of 30.0 foot-pounds.

On the basis of the results presented it is evident that these steels containing up to 1.50 per cent silicon, and suitable amounts of chromium and molybdenum, possess an ample Charpy im-

TABLE 4—STRESS-RUPTURE CHARACTERISTICS OF SICROMO STEELS AND STEELS CONTAINING 0.50 MAXIMUM PER CENT SILICON

(Stress for Rupture in Designated Time Period, Hours)

Steel—	10	100	1,000	10,000	100,000
900° F.					
Sicromo 1	.....	.....	.....	.....	.....
Sicromo 2	43,500	37,000	32,000	27,000	23,000
1,000° F.					
DM-2	49,000	47,000	40,000	33,500	27,500
Sicromo 1	40,000	34,000	28,800	24,200	20,250
Sicromo 2	32,000	25,000	19,500	15,000	11,750
Sicromo 3	31,000	24,000	19,000	14,800	11,250
Sicromo 5	35,000	23,000	17,300	13,200	10,000
4-6 Cr. Mo.	29,000	24,000	20,250	17,250	14,500
1,100° F.					
DM-2	35,000	24,000	13,800	7,800	4,500
Sicromo 1	25,000	17,000	11,400	7,800	5,250
Sicromo 2	22,000	17,250	11,000	7,000	4,400
Sicromo 3	21,900	15,000	10,400	7,300	5,000
Sicromo 5	20,000	14,400	10,250	7,500	5,400
4-6 Cr. Mo.	19,250	15,000	11,500	8,900	6,700
1,200° F.					
DM-2	18,500	10,400	6,800	3,100	1,700
Sicromo 1	13,500	9,000	6,000	4,000	2,650
Sicromo 2	14,000	9,500	6,400	4,250	2,800
Sicromo 3	13,100	9,400	6,600	4,700	3,400
Sicromo 5	12,250	8,700	6,200	4,400	3,150
4-6 Cr. Mo.	12,800	9,500	7,200	4,700	3,000
1,300° F.					
Sicromo 3	8,000	5,600	4,000	2,800	1,950
Sicromo 5	7,500	5,250	3,700	2,650	1,850
4-6 Cr. Mo.	8,600	6,000	3,600	2,200	1,300
1,500° F.					
Sicromo 3	3,200	2,200	1,320	600	270
Sicromo 5	2,850	1,800	1,160	740	470
4-6 Cr. Mo.	3,800	1,910	730	280	105

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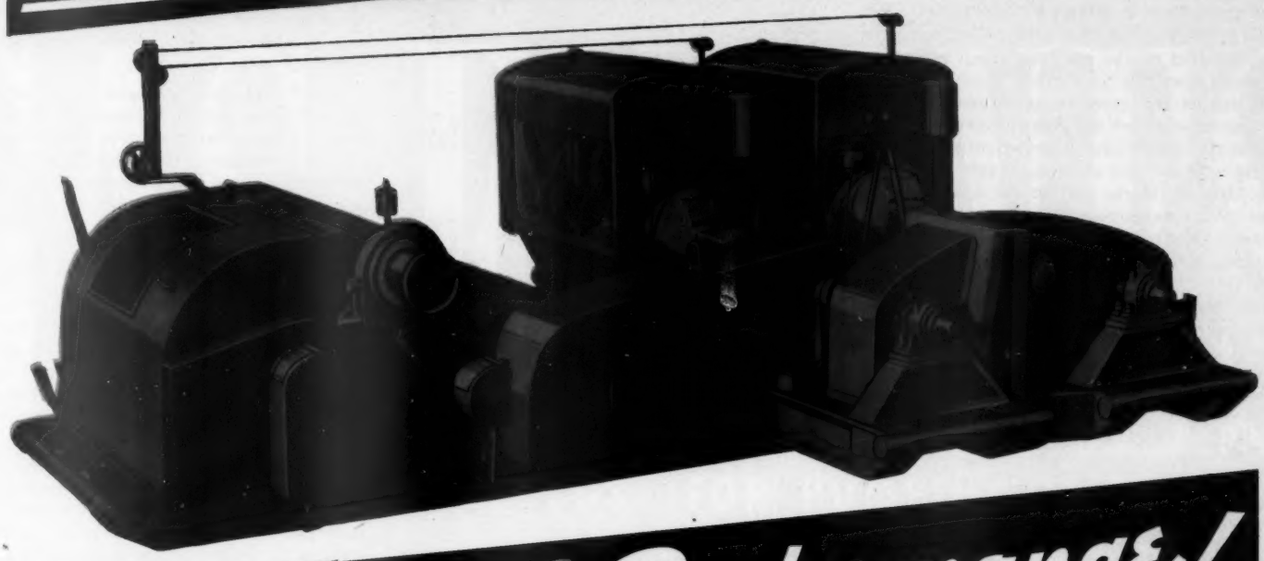

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pact resistance both at room and elevated temperatures.

Creep Resistance

The creep characteristics of these steels, at temperatures ranging from 800 to 1,300° F., are given in Table 3 and shown graphically in Figure 2. In the table, corresponding values are likewise given for steels containing 0.50 max. per cent silicon in order to show the influence of increased silicon content on the resulting creep resistance.

First considering the Sicromo steels it will be noted that at the lower temperatures the lower chromium steels have the greater creep resistance while at the more elevated temperatures they are the less resistant. For example, at 900° F., as well as at 1,000° F., in the case of the stress for the faster creep rate, Sicromo 1 is the superior steel. At the higher temperatures, however, its creep resistance is inferior to that of the remaining steels.

The remaining four Sicromo steels possess nearly identical creep resistance at 1,000 and

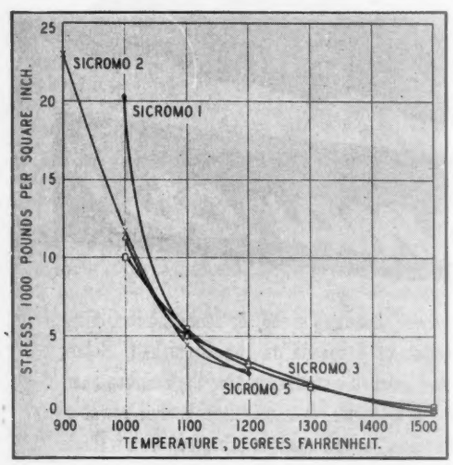

Fig. 3—Rupture strength characteristics (100,000 hours) of the Sicromo steels

11,00° F. Based on the stress required for a creep rate of 0.01 per cent per 1,000 hours, the range at 1,000° F. is only from 5,400 to 5,700 pounds, and at 1,100° F. from 2,400 to 2,600 pounds per square inch. At 1,200° F. the differences are more pronounced, the range being from 1,000 to 1,800 pounds. At this temperature the Sicromo 3 and Sicromo 5 steels possess the greatest strength on the basis of the lower creep rate, and Sicromo 2 and Sicromo 3 on the basis of the faster rate.

Solely on the basis of the creep characteristics there would, therefore, be little choice between Sicromo 2, Sicromo 3 and Sicromo 5 for service at 1,000 and 1,100° F. As will be shown later, however, differences do exist in the surface stability of these steels and the proper selection will depend on the degree of oxidation and corrosion resistance desired.

From the values given in Table 3 it is apparent that an increase in silicon content from 0.50 max. to approximately 1.50 per cent decreases the resulting creep resistance in the temperature range of 1,000 and 1,100° F. At 900° F. the influence varies depending upon the chromium content. For the 1.0 per cent chromium type steels, the creep resistance at 900° F. is raised by increased silicon content, while for the higher chromium steels, it is lowered. In general, the creep resistance at temperatures of 1,200° F. or higher is influenced only to a slight extent as the silicon is varied over the range considered.

While the creep resistance is generally lowered by increased silicon content, it will be shown later, that because of increased surface stability, increased silicon content actually increases the load-carrying ability at the more elevated temperatures, even under mildly oxidizing or corroding conditions, and likewise at the lower temperatures under more severe conditions of attack.

TABLE 5—RELATIONSHIP OF CREEP STRENGTH TO RUPTURE STRENGTH FOR SICROMO STEELS CONTAINING 0.50 MAXIMUM PER CENT SILICON

Temp., °F.	Creep strength 0.01% per 1,000 hrs.	Stress for rupture in 100,000 hrs.	Creep strength rupture strength
Sicromo 5			
1,000	5,450	10,000	0.55
1,100	2,600	5,400	0.48
1,200	1,600	3,150	0.51
1,300	920	1,850	0.50
1,500	....	470	...
Sicromo 3			
1,000	5,400	11,250	0.48
1,100	2,500	5,000	0.50
1,200	1,800	3,400	0.53
1,300	....	1,950	...
1,500	....	270	...
Sicromo 2			
900	9,900	23,000	0.43
1,000	5,700	11,750	0.49
1,100	2,400	4,400	0.55
1,200	1,400	2,800	0.50
Sicromo 1			
1,000	4,300	20,250	0.21
1,100	1,525	5,250	0.29
1,200	720	2,650	0.27
4-6 Cr. Mo.			
1,000	7,600	14,500	0.52
1,100	3,200	6,700	0.48
1,200	1,700	3,000	0.57
1,300	890	1.300	0.68
DM-2			
1,000	6,700	27,500	0.24
1,100	2,400	4,500	0.53
1,200	780	1,700	0.46

Rupture Strength

The rupture-strength characteristics of these steels are given in Table 4 and Figure 3. In the tables similar values are included for certain steels with 0.50 max. per cent silicon in order to show the influence of variations in this element. The stresses given in the figure are based on a rupture time period of 100,000 hours. It is true that a certain amount of extrapolation was necessary to obtain these stresses but because of the straight-line logarithmic relationship which exists, and the positiveness of the values considered, this degree of extrapolation is not believed to be excessive.

The results presented show that the Sicromo steels arrange themselves in the same relative order as in the creep tests. That is, at the lower temperatures the lower chromium steels are superior while at the more elevated ones increased chromium content improves the load-carrying capacity. At 1,000° F. Sicromo 1 steel possesses the greatest strength, and Sicromo 5 the minimum. At 1,200° F. Sicromo 3 and Sicromo 5 are superior and at 1,500° F. Sicromo 5 is somewhat better than Sicromo 3.

The influence of increased silicon content on the rupture strength varies, depending on the chromium content, the temperature, and the rupture-time period considered. In the case of the 1.0 per cent chromium type steels, increased silicon content decreases the rupture strength at 1,000° F. for all time periods. At 1,100 and 1,200° F. the same is true only for time periods up to 1,000 hours. For the more prolonged fracture time periods increased silicon content is beneficial.

With the 5.0 per cent chromium-type steels, increased silicon content decreases the rupture strength at 1,000 and 1,100° F. only for the more prolonged fracture times. At the higher temperatures its influence is exactly reversed, that is, it decreases the rupture strength for the shorter fracture time periods and increases it for the more prolonged periods.

As will be shown later the beneficial effect of increased silicon content on the load-carrying ability at the higher temperatures under the more prolonged fracture time periods, is due to the greater surface stability it imparts. The present results were obtained under mild oxidizing conditions. If the conditions had been more severely oxidizing then the superiority of the higher silicon steels would have been even more pronounced and would have been extended to the lower temperatures.

Since it is generally agreed that the majority of high temperature failures, especially in the case of oil cracking still tubes, occur during overheating conditions, rather than at normal operating temperatures, the value of increased silicon content in increasing the life can be readily appreciated.

Creep Strength vs. Rupture Strength

Since, as previously stated, the creep characteristics are largely used as a basis for the design of high temperature equipment, a comparison of the results from the creep and stress-rupture tests, as given in Table 5, should be of interest. Similar values are included for two 0.50 max. per cent silicon steels in order that the comparison may be more complete.

With all of the steels containing 2.0 per cent or more chromium the ratio of the creep strength (0.01 per cent per 1,000 hours) to the stress for rupture in 100,000 hours is approximately 0.50. In other words, for these steels a design stress based on one-half of the 100,000 rupture strength value would be approximately equivalent to one based on the stress required for a creep rate of 0.01 per cent per 1,000 hours. The stress-rupture test is, however, the simpler of the two and it also yields additional information with respect to the influence of time, temperature and stress on the ductility and deformation characteristics as well as the influence of the surface and structural ductility.

In the case of the Sicromo 1 steel, as well as the DM-2 steel at 1,000° F., the ratio is of the order of 0.25 rather than 0.50. The lowering of this ratio for these steels is believed to be due to their greater tendency to strain harden under the given test conditions. Since the stresses used in the stress-rupture test are larger, the tendency to strain harden would be more pronounced and thus the rupture strength would be influenced to a greater extent than the creep strength. This belief is substantiated by the fact that at 1,100 and 1,200° F. the ratio of DM-2 rises to 0.50.

From these results it thus appears that when the characteristics of a given type of steel have once been established, the stress-rupture values afford a convenient means for obtaining design stresses. By determining these characteristics under atmospheres similar to those to be encountered in service, valuable information can be obtained not only with respect to the load-carrying ability but also with respect to the influence of the given atmospheres on the surface stability and on the ductility characteristics up to fracture. In other words, indications can be obtained as to whether brittle type fractures are to be expected.

Stress-rupture tests of 100 to 500 hours duration also serve another useful purpose in that they afford a means of determining the behavior of new type steels to overheated and thus overstressed conditions. Since the overheated condition generally exists for a relatively short time period, and since the rate of deformation during this period is generally much more rapid than that considered in the creep tests, the stress-rupture test is believed to be of considerably more use for this purpose than the creep test.

(To be continued)

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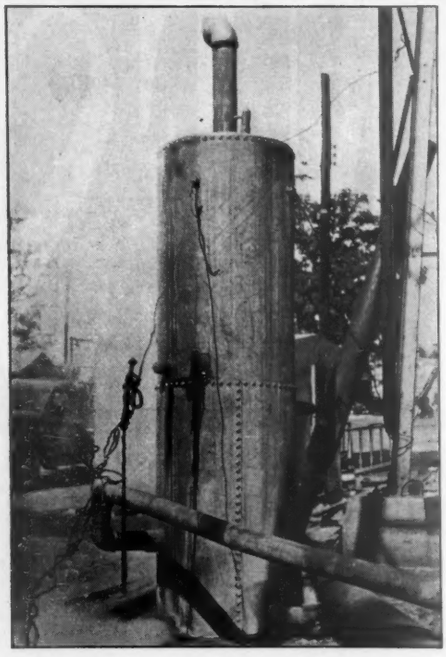
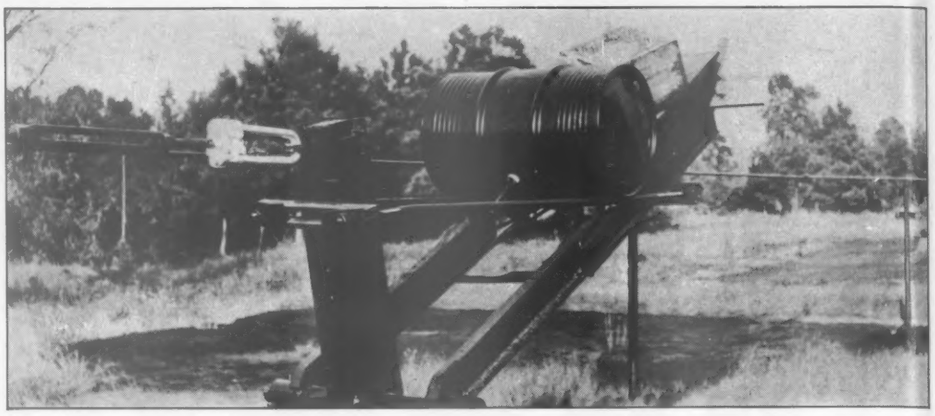
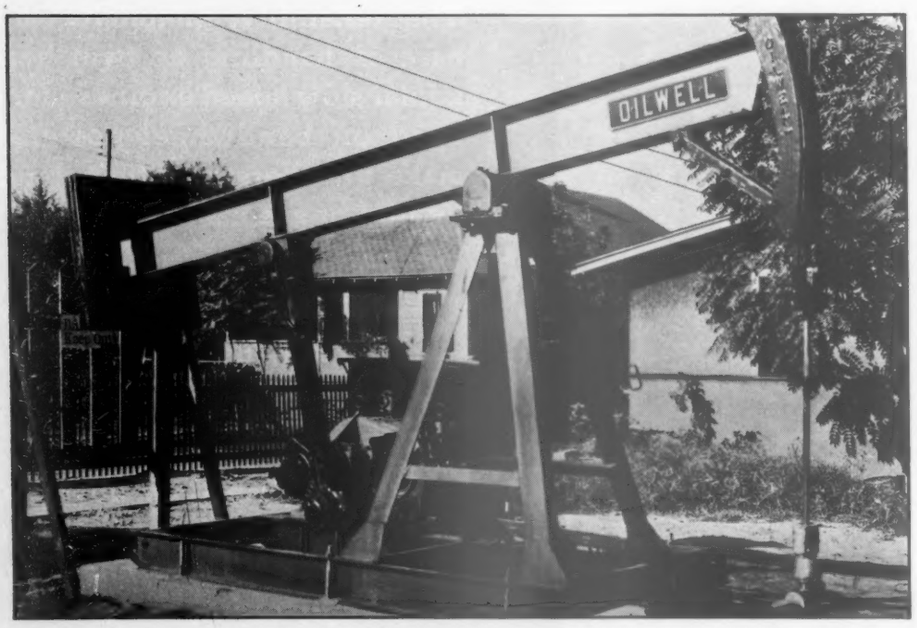


congested locations, such as exist where there is town-lot drilling within the city limits of Kilgore, in the East Texas field. One driller solved the exhaust problem by leading all lines to an old separator, mounted vertically. The steam enters at or near the base of the separator and is retarded and muffled by trays, baffles and projections within the shell. The steam emerging through the vent pipe at the top is freed of pulsations originating at the pump and engine; so much of its initial velocity has been lost that it no longer creates a hazard. Condensate is drained through a vent at the base; this goes to the gutter and is drained off.



Rocking Horse Counterbalance on Rod Line

On a narrow lease where it was not feasible to set power pumping unit in the middle of the three wells, a unique rocking counterbalance offset the unbalanced pull of two sets of rods in the jack-pumped wells and equalized the load so as to permit uniform torque on the pumping unit. It was built up of two hold-downs and a heavy tension member; the arms of the counterbalance may be loaded with steel plate as shown. A drum is carried on the platform to permit closer adjustment of balance weights; the drum is filled with whatever quantity of water is required to give the desired pull. This water ballast may be easily regulated by draining off or adding the quantity required for changing load conditions at the wells. The use of water ballast makes it possible to balance in the most accurate manner.



Fence Guards Pedestrians

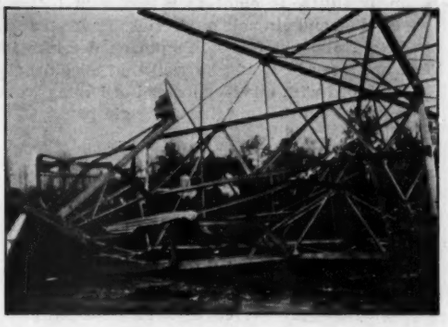
Wells are drilled in backyards in Illinois and often are located near concrete walks used by people living in the neighborhood. This pumping unit is located near a walk which is used frequently; to prevent anyone from passing under the counterbalance end of the beam, this operator has erected a barricade; without this serious injuries might be possible.

Unusual Gathering Pump

Oil operators frequently find use for machinery that is no longer able to perform the task for which it was originally purchased. This operator had a fluid end of an old reciprocating pump and an old style, open-end, single-cylinder gas engine. He coupled these together and covered them with a guard made of sheet iron. Inspection plates were provided for greasing and adjusting. For use as a water reservoir for the jacket cooling system, he installed the square box on top of the unit.

Erection and Care of Pumping Derricks

By JAMES E. DYER
Sun Oil Co.



This twisted mass of wreckage resulted when a derrick in Kilgore, Texas, was pulled down under overload conditions

The first factor in derrick erection is the foundation. Derrick foundations, or derrick corners, have two main purposes, first, to support the derrick and load without settling, and second, to help hold the derrick down during high winds and to offset the horizontal load of the tubing set back.

If a derrick foundation does not have sufficient bearing surface for the type soil upon which it is constructed there will be settling. As a result the derrick leg is pulled down, pulling the top of the derrick out of line with the center of the hole.

From a production point of view a twisted derrick or derrick with a low corner causes severe line wear and line cuts, and in clean out work with rotary rigs, occasional twist offs. From a safety point of view a twisted derrick or derrick out of line is in danger of failure when and if a heavy load is placed upon it.

On a recent inspection trip of old pumping derricks that had been in use for eighteen years, corners were found that were as much as 3½ inches lower than other corners on the derrick. A corner 3½ inches low, at first glance, seems rather insignificant, but the top of the derrick was found to be 10 inches out of line with the center of the hole.

Many operators are now using a combination drilling and pumping derrick with which the well is drilled and then left for future production or work over operations. In determining the size foundation for derricks for the latter purpose, the first factor to consider is the soil on which the derrick is to be erected. The bearing capacity of all soil decreases as the water content increases, thereby requiring larger corner foundations.

SAFE BEARING CAPACITY OF SOILS IN POUNDS PER SQUARE FOOT (A.P.I. CODE NO. 4)

Kind of material—	Min.	Max.
Rock equal to best brick masonry	30,000	40,000
Rock equal to poor brick masonry	10,000	20,000
Clay in thick beds, always dry	12,000	16,000
Clay in thick beds, moderately dry	8,000	12,000
Clay, soft	2,000	4,000
Gravel and coarse sand, well cemented	16,000	20,000
Sand, dry, compact and well cemented	8,000	12,000
Sand, clean, dry	4,000	8,000
Quick sand, alluvial soils, etc.	1,000	2,000

The maximum that any derrick corner should be out of level for safe operation must not exceed one-eighth inch.

The use of wooden derricks has gradually decreased with the years until today few operators are still using them. Some constructed years ago, however, are still in use. The first requirement for a wooden derrick is sound lumber free from defects. A wooden derrick is usually plumbed and squared by the eye of the rig builder: if he makes an error in judgment the top of the derrick will be out of line with the base.

Wet and dry weather causes lumber to swell and shrink, after a time the lumber becomes very dry and the nails will be loosened. To prevent dangers from loose nails in dry wood the nails might be replaced with bolts and large flat washers.

A wooden derrick is easily loosened by vibrations as those usually experienced during drilling operations. The derrick man should inspect the derrick regularly for any nails that might be pulled either loose or out and replace them.

Derrick with no run-arounds on crown or double board being used in Centralia, Illinois

For all general purposes, steel derricks are much superior to wooden derricks. The experiences gained from failures to steel derricks have been incorporated into the design of all late steel derricks, thereby reducing the failures to a minimum where the derricks are properly used and kept in good condition.

Steel derricks turn and buckle when they fall instead of collapsing, thereby reducing the chances of injury to the workmen upon the floor.

At the time a derrick is erected the bolts should be tightened only slightly more than finger tight until the entire derrick is assembled, after which they should be gone over and tightened.

Frequent inspections should be made for a time after the derrick is erected, as vibrations cause the nuts to work loose on the bolts. Falling nuts and bolts have caused serious injuries to men working on the floor, and braces or girts that have become loosened from loss of bolts cause a material weakness in the derrick.

A steel derrick has rigidity, the quality that enables the derrick to absorb the vibrations and loads to which the structure is subjected under ordinary operating conditions. It has resiliency, that quality which is responsible for a derrick's performance in emergencies, that is, the power of recovery from excessive shock, torsion, tension, or pressure.

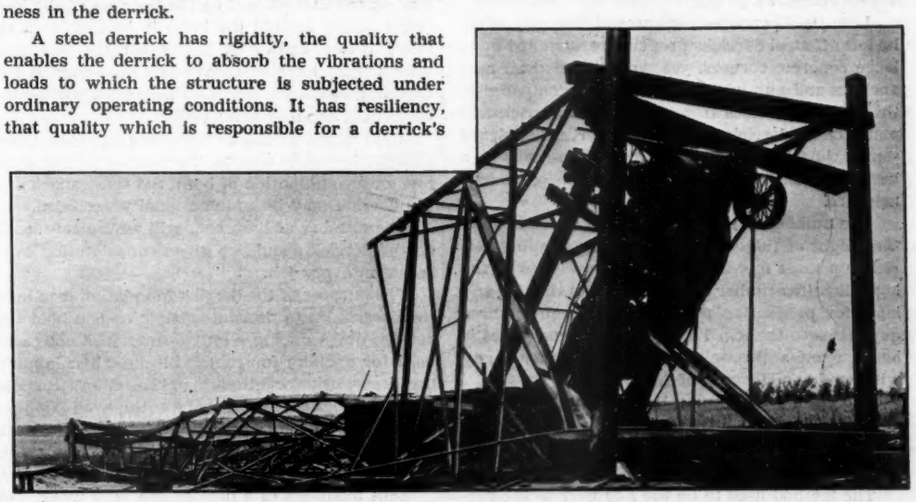
In the inspection of steel derricks, particular attention should be given the girts and cross braces, if they are bent it will cause the legs to be pulled inward. Cross braces, if bent, should be straightened to allow the legs of the derrick to be in alignment. Girts, if bent, should not be repaired but replaced; the yield point at the bend has been exceeded and the strength will never again be that of the original member.

Rust and corrosion cause many derricks to become weakened. Steel derricks should be inspected regularly for rust and corrosion, the spots should be cleaned thoroughly with a wire brush and treated with red lead, graphite, or other metal preserving paint. The cost of painting derricks may, at first, seem high but to spare the paint and allow the ravaging elements to destroy the derrick is false economy.

Gin Poles

Oklahoma Bureau of Factory Inspection, Bulletin No. 11-A, Petroleum Safety Standards in specification No. 32 says, "The gin poles at the crown of every derrick shall have two uprights and a cross beam." The most common type of old pumping derricks is a piece of 2-inch pipe approximately 12 feet in length that extends from the last girt to a point about 5 feet above the water table. This type of gin pole is inadequate, unsafe, and in some states unlawful.

Wooden gin poles that have been constructed on steel derricks and seldom used are hazardous. The present accepted gin pole, as specified by the standardization committee of the American Petro-



A windstorm which swept through the K.M.A. field near Wichita Falls, Texas, upset this derrick and spudding machine being used to complete a well

Summary of a paper delivered before Petroleum Division of National Safety Council at Chicago.

leum Institute, is eight feet minimum between water table and gin pole on derricks under 122 feet in height and ten feet minimum on derricks 122 feet and over. It would be well that all gin poles be equipped with a ladder instead of having workmen "shin" up the upright of the gin pole.

Crows Nest

The crows nest is another part of the derrick that is specified in the codes of Oklahoma and California. The Oklahoma Code requires, "on every derrick a platform of steel or heavy lumber at least two feet wide shall be provided around the edges of the derrick crown. This platform shall be equipped on its outer edges with a standard 1¼-inch material; top railing 42 inches from the floor level; lower railing to be halfway between the floor level and the top railing; uprights to be spaced not more than eight feet apart."

Prior to the enactment of these codes, steel derricks were not equipped either with run around platform or handrails. This was not and is not a safe practice. The old type tubular derrick was not designed for crows nests and is very hard to change.

The most desirable and safest material that may be used for a handrail is 1¼-inch or 2-inch pipe, bolted firmly to the legs of the derrick. Some operators use lumber for the construction of these handrails, and in a few years they are far more hazardous than no handrail at all.

There can be no argument against the need of crows nests. When workmen are changing sheaves, stringing up lines, or using wrenches on the crown block there is a possible fatal accident that may result from tripping while stepping over sheaves, wrenches slipping, or even blown from the derrick by unexpected gusts of wind. Workmen upon the floor are likewise subjected to hazards of falling wrenches or bolts, for the most natural thing for the man on the top to do when he becomes over balanced is to drop his wrench and grab hold to prevent falling.

Guy Wires

The purpose of the guy wire is to prevent the derrick from overturning during high winds or wind storms. From the number of derricks leveled by winds in the past it would seem that the value of guy wires has been underestimated. Several years back, from 1916 to 1924, 9,000 derricks were leveled during an eight-year period and in one month in the Mid-Continent area 1,300 derricks were leveled. It is true that most of the derricks leveled during this period were wooden derricks, yet as late as 1932 a small wind storm struck in the East Texas field, blowing over both steel and wooden derricks.

Late field practices recommend that guy wires be left off steel derricks properly constructed upon large concrete corners, yet the costs of dead men anchors and guy wires are negligible compared to the monetary losses from overturned derricks. In many cases derrick failures or overturning leave some injured and dead so that guy wires take on a humanitarian aspect as well as an economic measure.

The number of guy wires needed depends upon the height of the derrick. For small pumping derricks up to 84 feet in height two guy wires to the leg will suffice; taller derricks used for drilling and later for production purposes may require three guy wires to the leg. This number of guy wires is based upon a three-eighths inch galvanized guy wire having a strength of 4,250 pounds.

The top wire should be placed well down on the derrick and the second wire tied at a level with the finger board as this is the point receiving the maximum pressure.

The method used to tie the guy wire to the derrick should be given consideration, for a guy wire full of knots and kinks cannot be expected to stand its maximum strength. From two to three wraps around the derrick leg of a steel derrick at the joint is the more common practice of tying the guy wire to the derrick. A more efficient method is a regular line clamp. This same method is recommended for attaching the guy wire to the turnbuckle at the dead man anchor.

Tests and experience prove that the most desirable and practical method to use in guying a derrick is to place the guy wires diagonally on the derrick legs and run them directly to the dead man.

Every guy wire should be equipped with a large turnbuckle so the lease pumper may adjust it from time to time to keep the tension equal in all wires.

The most desirable and most economical dead man is a piece of six-inch pipe in concrete and covered with from three to six feet of earth, depending upon the height of the derrick and the number of wires to be attached to the anchor bolt. For this type dead man and anchor the anchor rod should be a 1-inch or 1¼-inch bolt extending from a point down in the concrete around the six-inch pipe to approximately three feet above the surface of the ground.

Safe Uses

Overloading and sudden loads should be avoided as much as possible for the safe operation of any derrick. The inertia of any body must be overcome to move it if it is quiet or to stop it if it is in motion; for this reason the practice of allowing a travelling block to "fall" when lowering pipe into the hole should not be tolerated. Some drillers in "showing off" allow the block to "fall" until it is very near the point where they want to stop it, then apply the brake to show how they can stop it right on the "money." This is very bad practice and if allowed to continue will result in a derrick failure and possibly an injury.

Similar reactions occur when pulling the drill pipe out of the hole. Yet some drillers persist in the practice of latching the elevators at a point below the coupling and then running into the coupling with a terrific jerk.

In stuck tubing jobs most all the pulling is done with pulling machines mounted on trucks. On jobs of this nature a weight indicator should be used so that the pull may be kept within the safe limits of the derrick's ultimate strength.

Drillers and pulling machine operators must remember that the number of lines strung to the traveling block directly influences the load upon the derrick. Should a single line be strung from the pulling machine to the travelling block the loading on the derrick is 200 per cent of the load being pulled. Should the line go through one sheave of the traveling block and dead-end at the crown the load on the derrick will be 150 per cent of the load being pulled. Should the hook-up be such that instead of dead-ending at the crown, the line goes over a second crown sheave and dead-ends at the traveling block, the load on the derrick will be 133 per cent of the load being pulled.

With increases due to the stringing of the lines, or with increases due to the placing of the dead line, or a combination of both, the safe capacity of the derrick may be unintentionally exceeded.

The number of lines that will assure safe loads on the derrick should be given consideration over speed on every job.

The purpose of the derrick foundation is to hold the derrick up to prevent settling and to hold the derrick down during wind storms; it is not to be used for anchors for snatch blocks when landing the drawworks or other material. Many foundations are pulled askew before the well is ever started due to the improper use of the foundation corner such as using the corner to hold the truck while winching or as an anchor for snatch blocks.

Bent members of a derrick are very weak. Yet derrick legs have been used many times for anchors, and many derrick legs have been bent and pulled out of alignment by this improper use.

Eccentric loading caused from shifting crown blocks is a very dangerous practice. Settling of a corner pulls the derrick out of line with the hole, and shifting crown blocks to offset this difference places a strain on the legs in the direction in which the crown shifted and may cause the legs to buckle and the derrick to fail.

FRACTIONATING

(Continued from Page 40)

g = liquid-volume-percentage of top product based on feedstock

h = liquid-volume-percentage of bottom product based on feedstock

J = a constant for converting mol percentage of products to liquid-volume-percentage (refer to Equations 16, 17, 18 and 19[5])

w = liquid-volume-percentage of product (or products) withdrawn from the tower in other sections of tower than the one under consideration. This applies to products withdrawn either above or below the intermediate column under consideration

z = liquid-volume percentage of each particular fraction in the product designated as w

An example of the use of the wz term is given in Part 6 of this series.[6]

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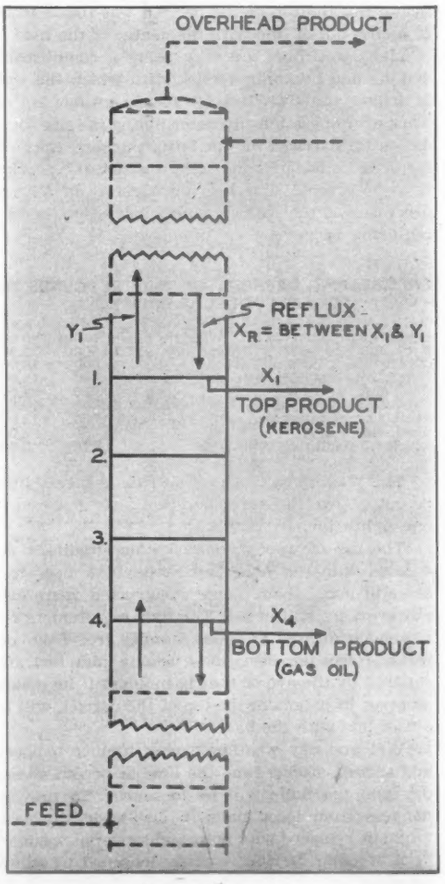

Fig. 13—Intermediate tower system (4 plates)

Time Study on Pumping Well

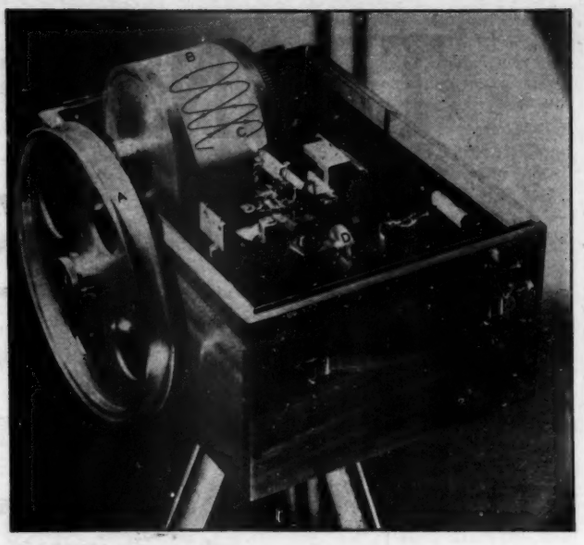

Fig. 1—Recording equipment showing manner in which curve is developed as the drum rotates

An instrument recently made available is designed for measurement and comparison of the time used by two strokes or portions of corresponding strokes of a cycle of a reciprocating machine. It is especially useful in showing the time used to a very small fraction of a second, of part of one stroke or the comparison of the time used for portions of one stroke with the corresponding portions of the opposite stroke. The device, invented by George M. Higginson, is called a higometer.

It was thought out originally to find a simple practical method of determining whether the pump of an oil well was properly counterbalanced so as to have smooth operation and use a minimum of power. This would cause a saving of power and a reduction of stresses, besides doing away with intangible losses caused by imperfect counterbalancing which are often overlooked.

Figure 1 shows clearly the manner in which the instrument operates, which is as follows:

The pulley, A, to the left in Figure 1, has a cable or string attached to it. The end of the string is fastened to a clamp or hook that can be attached to the polish-rod or sling, while the well is pumping under normal conditions and pumping its normal amount of oil.

It will readily be seen that there is no necessity of stopping the well to take a record, and conditions are not changed as they would be, if the well were shut down to attach it. As the pulley moves at a proportional rate of speed to the up-stroke of the polish-rod, the drum, B, on which the recording paper is carried, moves at a proportional rate also. At the same time the recording point, C, moves horizontally back and forth across the recording paper at a constant frequency. This frequency can be varied to such a value that the recording point will reach the commencement of the up-stroke graph (see Figure 2) when the bottom of the down-stroke graph is reached (point O, Figure 2).

When the top of the up-stroke graph (R, Figure 2) is reached, the direction in which the recording-paper drum is moving is reversed and the time of down-stroke starts to record. Thus on the same chart, a record is made of the time used for each stroke, and if each stroke took the same amount of time for each corresponding length or part, the graph of one stroke would be a mirror-like reflection of the other (as in Figure 2) and the graph of one stroke would intersect the other on the zero line (O-R) or the line extending vertically from the center of the graph paper at the point of commencement of the up-stroke. The instrument is so designed that it can be adjusted so that the clutch that throws the recording-paper drum into operation with the pulley is thrown into gear at the instant the recording point is at the zero line extending vertically from the center of the recording paper.

For example, suppose two seconds are to be used for an up- and down-stroke. The frequency is adjusted by the little vernier wheel, D, that operates the pointer shown in the left-hand corner of Figure 1 until it takes two seconds for a complete cycle (time of the up- and down-stroke). The recording point will then reach the zero line at the completion of the down-stroke at the point, O, where the up-stroke started. There is also a vernier adjustment that adjusts the clutch-release so that it throws the drum in gear at the instant the down-stroke is completed, and the frequency of the recording point may be varied over a wide range.

An alternative simple manner in which the instrument may be used is the following: The record may be started from any point on the horizontal line (see Figure 4) and the number of half amplitudes of vibrations of the up-stroke can be counted and the number of the down-stroke also counted. Amplitude may be defined as the dis-

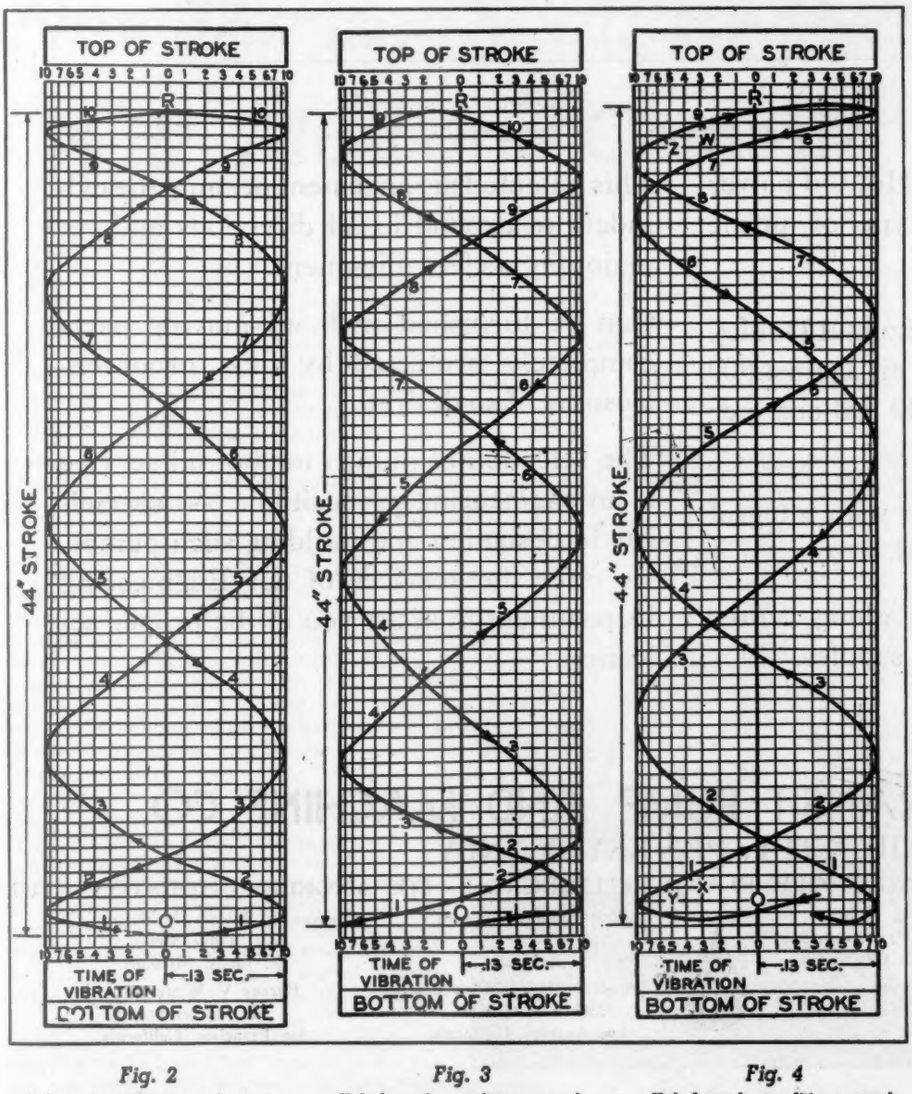

Fig. 2
Balanced condition graph started at point 0

Fig. 3
Unbalanced condition graph started at point 0

Fig. 4
Unbalanced condition graph started at point other than 0

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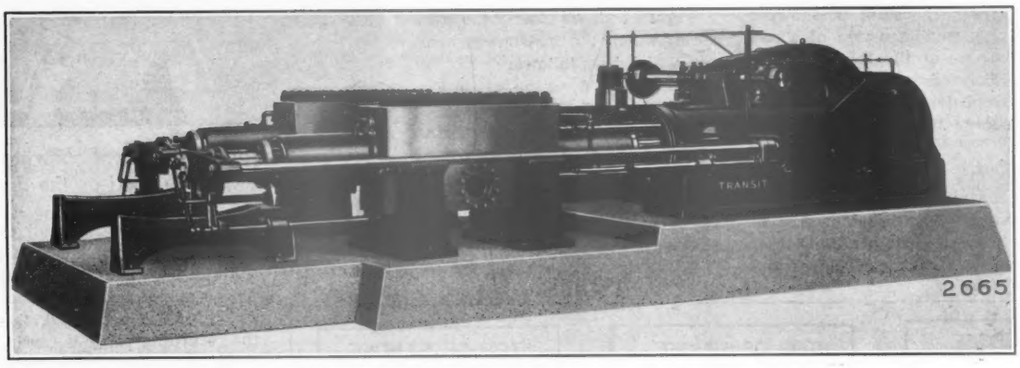

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tance across the graph paper. This will show the ratio of the time of the up-stroke compared with the time of the down-stroke.

Figure 3 is given as an assumed case of unbalance. Here it took 10.1 vibrations of half amplitude for the time of the up-stroke and 8.9 vibrations of one-half amplitude for the time of the down-stroke; or, the time of the down-stroke is approximately 88.1 of the time of the up-stroke. This indicates a condition of under counterbalance which is readily observed from the difference in the number of vibrations and from the graph not being symmetrical.

On the other hand Figure 2 shows an ideal condition of balance based on the assumption that the travel of the polish-rod was produced by harmonic motion. In this case there are 10 vibrations for the time of the up-stroke and also for the down-stroke. The graph is symmetrical and the two graphs intersect each other on the zero line, O-R.

From practical experience with many pumping wells in different oil regions where the prime mover was a variable-speed motor and which were counterbalanced by the minimum power method with an especially constructed recording wattmeter, the instrument showed that, when the wells were running clockwise, the time of the down-stroke equaled approximately 96 per cent of the time of the up-stroke for a balanced condition. The difference of 4 per cent may have been due to the difference in the angularity of the pitman and of the polish-rod with the walking-beam in the two strokes.

Figure 4 shows an actual graph taken of a well which had a variable-speed motor as prime mover, 24 S.P.M. stroke 44 inches.

This graph was taken by the alternative method as described and shows an unbalanced condition, there being .7 + 9.4 or 10.1 vibrations on the up-stroke and .4 + 8.6 or 9 vibrations on the down-stroke. The down-stroke time equals 9/10.1 or 88.1 per cent of the time of the up-stroke.

From graphs taken with rotary counterbalance, it has been noticed that from a condition of underbalance as shown by the instrument at a low speed, as the speed was increased, a condition of balance was reached and further speed made a condition of overbalance. The increase in S.P.M. appeared to haye more effect than increases of weight on the rotary counterbalance. By balancing wells in this manner a saving will be made as it would not be necessary to have men remove or add weights to counterbalance.

New Mexico Well Killed With Mud and Cement

By D. H. STORMONT

Over 1,250 tons of drilling mud, 5,500 sacks of cement, 250 sacks of cotton seed hulls, 100 bales of Fibrotex and countless thousands of barrels of water were required in the killing of a wild gas well recently brought under control in the Eunice field of New Mexico. After drilling mud and clear water had both failed to check the large gas flow, even plaster paris was experimently used in an attempt to kill the well. Over one month was required to bring the well under control, which was flowing gas at the rate of 250,000,000 to 400,000,000 feet daily.

The well was drilled by Service Drilling Co. of Big Spring, Tex., with a Wilson portable rig using two 200-hp. Cummins Diesels. Twelve and one-half inch surface casing was cemented at 200 feet and 3,112 feet of 9⅝-inch casing set with 750 sacks of cement. Expecting to encounter the high-pressure gas most wells meet in this field, the operator began increasing the mud weight at 3,125 feet, immediately under the 9⅝-inch casing. At the time the well blew out, 13-pound mud was in the hole.

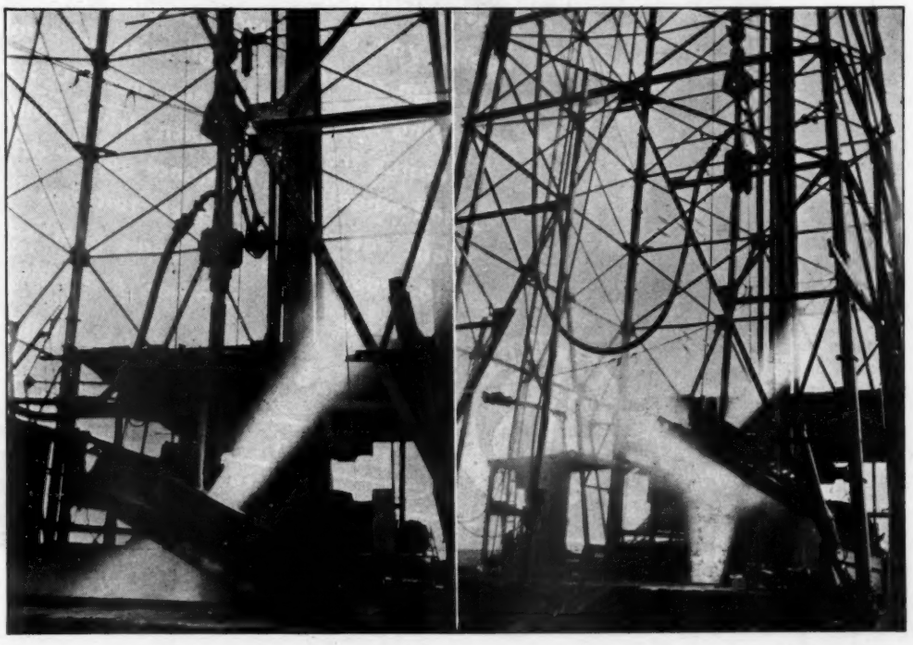
First signs of the porous structure containing high-pressure gas were encountered at 3,450 feet when the drum, which had been set to feed line as hole was made, began feeding very rapidly. At this time mud circulation was lost, but since the full length of the kelly was up, it was possible to lower the kelly until the drill pipe was again on solid formation. After drilling was started into the solid formation, circulation started building up until at the end of 15 minutes full circulation was regained.

This success, however, was short-lived for at 3,540 feet the bit drilled into "something that just was not there." The drum started unwinding and the kelly went down 4 feet before landing. The weight indicator rose to the full weight of the drill stem and the pressure gauge on the mud line fell to around zero. This time only 5 or 6 feet was left on the kelly.

After pumping all the mud from the pits into the well, the mud weighing 14 pounds, together with several sacks of cotton seed hulls and about 55 sacks of Fibrotex, there was still no signs of returns so the operator started to pull up the stem and close the blowout preventer. Upon leaving bottom, however, the well blew out. The kelly rose the length of the rotary hose, where it broke loose from the drill pipe, fell back and broke the knuckle joint of the master gate. Thus closing in of the well was greatly hindered and required several hours. After the kelly broke loose the drill pipe remained suspended for a moment then settled back in the hole.

The stuck drill pipe was pulled and the well killed with water, but would remain dead for only a few minutes at a time. In attempting to bring the well under control 1,250 tons of mud were pumped in with no show of returns. After this method proved unsuccessful another attempt was made using gypsum. A total of 500 sacks were pumped into the hole but due to the rapidity with which the gypsum set the pumps were unable to pump it to bottom. Thus is was then necessary to go in with the drill pipe and drill through the hardened gypsum, topped at about 1,500 feet. Unusual care was taken in drilling through the gypsum as once the hole was cleared the full force of the high-pressure gas would again be encountered, and probability of a fire resulting from the tools being blown up the hole was extremely high. However, when the gypsum plug was drilled at around 3,000 feet no blowout occurred, probably being due to the fact that only a 6¼-inch bit was being used in a 9⅝-inch hole.

The well was again killed with clear water in order to make the necessary connections for pumping cement. After these were made, 4,000 sacks were pumped to bottom of the casing and allowed to set for 90 hours. Upon testing the shut-off, it was found to be of such small effect that a Baker cement retainer was set in the bottom of the casing and 250 sacks of cement pumped through it. This was allowed to set for 12 hours; then 250 more sacks pumped in and let set for the same length of time. The third time pumping was established, the well would take only 25 sacks of cement. After allowing this batch to set 72 hours the drill pipe was run in the hole and the cement retainer drilled out. The hole was then drilled to the casing point, 7-inch casing cemented at 3,725 feet and the well completed for 66 bbls. daily.



Two views of the rotary table and drill stem being blown into the air by the high-pressure gas encountered in the Eunice field of New Mexico

3 YEARS on "Power"
... STILL TRUE
... STILL STRETCHLESS
On a power drive since 1935, this U. S. Royal Cord Transmission Belt is still one of the sweetest running belts you ever saw. Pumping from 17 to 22 wells through connecting cables—some a mile long—under varying speeds and loads, this 190' x 24" x 9-ply belt operates from a 30-inch drive pulley to a 30-foot band wheel on a National power drive with an automatic take-up for slack tension. Running smoothly and true, there has been practically no stretch in this U. S. Belt. Another example of U. S. Rubber
SERVICE BEYOND PRICE AND SPECIFICATIONS
UNITED STATES RUBBER COMPANY
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United States Rubber Products, Inc., New York, N. Y.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Cementing Off Water Sand

We drilled two shallow wells before the article entitled "Preservation of Hole Size in Cable Tool Drilling" appeared in the May 5, 1938, issue of The Oil and Gas Journal. We are now wondering if this method could have been used satisfactorily in a well 35 feet total depth with a water sand found with top at 30 feet and in which hole the water stood at 15 feet from the top? Also, if the method might have been used in another well 170 feet total depth with 10 feet of water sand at the bottom and the water standing to within 100 feet of the top. No pipe in either hole. It has been contended that this method might work in the 170-foot hole but it would not work in the 35-foot hole. It is proposed to use a column of fresh water on top of the cement plug. What difference would it make if salt water were used? How do you estimate sacks of cement for a shut-off job? Can an estimate be made of the amount of cement that will enter a porous sand if the hdyrostatic head of the water is known?—J. R. F.

The article referred to contemplates the enlarging of the pores in the limestone before the cement is run. If you have a sand only the use of acid would not help in cementing off the water. The hole could be reamed through the water sand and then a cement plug set and drilled out later, but this is not a very good way to attempt to shut off a water sand because it is possible that the cement will crack when drilled through.

To estimate the presusre that would be exerted on top of the cement plug in the 35-foot hole with 5 feet of sand multiply 30 feet by .434, the weight of a column of fresh water 1 foot high. This will give a pressure of about 13 pounds per square inch. With the water standing 20 feet up in the hole the hydrostatic pressure in the formation would be about 8.6 pounds per square inch. For a column of salt water 30 feet high multiply the 13 pounds per square inch pressure exerted by the fresh water column by 1.02, the specific gravity of sea water, and the result will be about 13.26 pounds or an increased pressure on the top of the cement plug of .26 pound per square inch.

In the same way it is possible to estimate the pressure to be exerted on the top of the cement plug in the 170-foot hole. Multiply 160 feet by .434 and the result is 68.44 pounds per square inch pressure. Then multiply 68.44 by 1.02 to get the weight of the salt water column.

There are tables issued by all cement companies making oil well cement giving the required amounts for all size holes. One of these tables can be used and they are mostly based upon one sack of neat cement occupying 1.1 cubic feet after it sets. You can estimate the cubic content of the hole by multiplying the area of the hole by the depth. If inches are used in this problem multiply by 12 and divide by 1728, the number of cubic inches per cubic foot. For instance, a 6-inch diameter hole has an area of 28.274 square inches. This equals .1963 square foot and this is the cubic content of 1 foot of hole.

Without core of the formation penetrated it would be difficult to estimate the volume of the cement that might enter the pore space and even then it would not be certain the conditions in the well would be exactly duplicate of the conditions as found by analysis of the core in the laboratory.

It is suggested you read the article again, and for the kind of a job you outline it is recommended that pipe be run with a good shoe on a firm seat or set in cement to make a tight water shutoff.

Estimate of Gas Reserves

Is there any estimate of natural gas reserves in the fields in this country?—G. W. L.

It is difficult to appraise gas reserves, but in Dorsey Hager's recently published book, "Practical Oil Geology," fifth edition, the following table is given:

	Billion cu. ft.
Panhandle of Texas field	15,000
Hugoton, Kansas	10,000
Monroe, Louisiana	3,000
Baker-Glendive, Montana-North Dakota	500
Northern Montana fields	2,000
Kettleman Hills, California	5,000
Other California fields	10,000
Michigan	100
South Texas	5,000
Mississippi	500
Southeastern Oklahoma	1,000
Northern Arkansas	1,000
New York	1,000
Pennsylvania	3,000
Kentucky	5,000
West Virginia	5,000
Wyoming	6,000
Colorado	5,000
Illinois	100
Total	78,200

At the present rate of annual consumption of about 2,000,000,000,000 feet, there is enough gas for 35 years.

Volumetric Losses of Crude Oil

I have the impression that curves showing volumetric losses accompanying decreases in gravity of oil have been constructed. If so where can I find such information? I have in mind determining the oil lost through various methods of receiving the oil from pumping wells. Since the production of the wells varies considerably I would like to compute the volumetric losses by the decreases in the gravity of the oil received.—T. B.

You are correct in your assumption that formulae and curves have been prepared which will show the volumetric loss accompanying decreases in gravity of oil.

We refer you to Bulletin 200 and Technical Paper 319, both by J. H. Wiggins, formerly with the U. S. Bureau of Mines.

These publications deal with evaporation losses of petroleum and suggest methods of computing such losses which we understand is the information you desire to secure.

The formulae given will permit you to determine evaporation losses; also there are methods for determination of losses by specific gravity formula, temperature-percentage distilled data, and gravity or temperature curves.

These bulletins were published in 1922 and 1923, and it may be possible that you can secure a copy from the Government Printing Office in Washington, D. C., for a small charge.

However, if you find that they are out of print, we shall be glad to have formulae copied for you but hope that you can secure copies of the bulletins because they contain so much information in addition that refers to this general problem that they will be of much assistance to you.

Characteristics of Drilling Muds

I am desirous of obtaining some information as to determination of some characteristics of drilling muds. The A.P.I. classification method to determine sand content of mud? Also what is the colorimetric and electrometric methods? What characteristics are determined by those methods?—R. B. E.

It is suggested you write to the Division of Production, American Petroleum Institute, 1508 Gulf States Building, Dallas, Tex., for a copy of the recommendations on Standard Field Procedure for Testing Drilling Fluid as adopted June, 1938, because there are several sketches incorporated in this recommendation which we cannot reproduce in a letter. There is a procedure for determining sand contents given in this recommendation which will answer your question.

The colorimetric method of determining the pH value of drilling fluid may be done in several ways. Litmus may be used and give a fair estimate of pH value within its range. Indicators may also be used and some of them will exhibit great change in color when pH changes.

Another way to determine the pH value of mud is the electrical method. The indicator method is necessarily only an indirect one. The ionic theory is closely concerned with the electrochemical phenomena of solutions and these provide a basis for direct determination of pH. If copper is partially immersed in a solution of copper sulfate, a potential difference is set up between the metal and the solution. If two metals such as zinc and copper are immersed in solutions of their salts, by use of a porous membrane (as in several forms of wet batteries) an electric cell can be formed. This has a definite E.M.F. which can be shown to depend, amongst other things, on the hydrogen ion concentration.

These facts have been applied by the ceramic industry to determine the pH value of clays and further applied to the determination of pH value of drilling muds. The details of the theory and its application to drilling muds are too long to give in a letter but both methods are described in the recommendations above referred to, prepared by the committee for the A.P.I.

Water Analysis of East Texas

I have been looking for a salt water analysis on the East Texas oil field and am wondering if you can supply same. I am particularly interested in a complete break down of the salt water analysis.—T. E. B.

Complying with your request for water analysis of East Texas field waters we quote the following from a paper on the East Texas oil field by H. E. Minor and Marcus A. Hanna, published in the A.A.P.G. Bulletin of July, 1933:

EAST TEXAS FIELD

	Kilgore	Longview	Upshur
Sodium and potassium	24,540	24,653	25,185
Calcium	1,388	1,432	1,452
Magnesium	282	335	350
Sulfate	278	259	110
Chlorine	40,598	40,598	42,245
Bicarbonate	569	387	250
Total	67,649	68,964	69,592
Secondary alkalinity	0.8	1.8	0.2
Primary salinity	92.0	91.5	91.6
Secondary salinity	7.1	6.6	8.2

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Inspecting Alkaline Scrubbing When Washing Gasoline

I am in search of a rapid and simple method for the determination of NaSH in caustic solution used for scrubbing gasoline prior to treatment. I believe there is a method using iodine for titrating but do not know the detail. This method is supposed to be simple and short. What would be the limits of NaSH content in a caustic solution for efficient hydrogen sulfide removal? —H. E.

The alkalinity of caustic soda solutions, used for the removal of hydrogen sulfide from petroleum distillates, is commonly ascertained by titrating against a standardized acid solution in the presence of an indicator. The effectiveness of the wash solution depends upon the presence of sodium hydroxide and the thoroughness with which the scrubbing is done, consequently it is not the practice for operators to inspect the solution beyond the alkalinity indication.

The reactions are:

$$\underset{40}{NaOH} + \underset{34}{H_2S} = \underset{56}{NaSH} + H_2O$$

$$\underset{80}{2NaOH} + \underset{34}{H_2S} = \underset{78}{Na_2S} + 2H_2O$$

Sodium sulfide may be determined by the method described by Griffin. Dilute a weighed portion, approximately 10 grams, of the solution to 500 ml. with distilled water. Transfer 25 ml. by pipette, of the thoroughly mixed solution to a titrating flask, add an excess of 0.1 N iodine and titrate the excess of iodine with 0.1 N sodium thiosulfate solution.

The reaction is $Na_2S + I_2 = 2\ NaI + S$.

The calculation is based on the fact that 1 ml. 0.1 N iodine solution is equivalent to 0.003903 gram Na_2S.

The caustic doctor solution may be examined for caustic soda and sodium sulfide by the following method:

A weighed portion of the solution is diluted to 500 ml. with water and boiled one hour then filtered. Wash thoroughly with hot water. cool and then dilute the filtrate to 1,000 ml.

Caustic soda: Pipette 50 ml. of the solution into a 250 ml. flask and precipitate carbonates with a slight excess of $BaCl_2$ solution. Dilute to mark with distilled water. Shake, settle, pipette 100 ml. of the clear liquid (equiv. to 0.8 gm. original sample), titrate with 0.1 N HCl in presence of methyl orange. From this titration subtract 0.49 ml. for each percentage of Na_2S (see next). Calculate difference of NaOH. Each ml. of 0.1 N HCl = 0.004 gm. Noah.

Sodium sulfide: To 80 ml. distilled water in a flask add 25 ml. of the first filtrate above, equivalent to 1 gm. of the sample. Acidify with acetic acid and titrate 0.1 N iodine and starch indicator. Each ml. 0.1 N iodine = 0.0039 gm. Na_2S.

Sodium sulfide in alkaline solutions, as met with in the petroleum industry, has been studied by Baldeschwieler. The analytical method he has developed for sulfide sulfur in the solution containing sulfates, sulfides, thiosulfates, mercaptides, and sulfonates is quoted.

"To a known amount of the unknown, such as spent soda solution, add 10 per cent lead acetate solution until no further precipitation takes place. The precipate will contain, in addition to the lead salts of all the sulfo-acids present, lead hydroxide and the lead salts such as the carbonate and the silicate of some of the impurities generally present in commercial caustic soda. Filter through filter paper and wash with hot water. Unfold the filter over the beaker in which the precipitation had been made and wash the precipitate into the beaker with a stream of hot water. Make the volume up to about 100 cc. with hot water, add 15 grams of solid ammonium acetate and acetic acid until distinctly acid to litmus paper. Boil gently for 15 minutes and filter, washing with hot water. The insoluble portion will consist of lead sulfide together with some lead silicate if sodium silicate was present. For refinery control work filter the ammonium acetate insoluble through a Gooch crucible dried at 105° C. and weigh as lead sulfide, the presence of silica giving somewhat higher results.

"For more accurate work, the sulfur content of the lead sulfide precipitate must be determined. For this purpose, filter the ammonium acetate solution through filter paper, wash with hot water, and transfer the precipitate back into the beaker. Oxidize the lead sulfide to lead sulfate by adding bromine or potassium chlorate and nitric acid. Boil off the excess halogen, dilute with hot water, and cautiously neutralize with small portions of solid sodium carbonate, finally adding about 5 grams in excess. Boil for about 10 minutes and let settle. Decant through a filter into a beaker; add about 25 cc. of 10 per cent sodium carbonate to the insoluble in the first beaker, boil again and then filter, washing thoroughly with hot water; the insoluble on the filter will consist of lead carbonate, while the sulfate radical will pass into the filtrate as sodium sulfate. Carefully neutralize with hydrochloric acid, adding a fair excess, evaporate to dryness to decompose nitrates and dehydrate the silica, take up with water and a little hydrochloric acid, and determine the sulfur as usual by precipitation with barium chloride and weighing as barium sulfate."

References: Griffin; Technical Methods of Analysis, Pages 41 and 398.
E. L. Baldeschwieler, Determination of Sulfide Sulfur in Alkaline Solutions Containing Other Sulfur Compounds, Ind. Eng. Chem., Anal. Ed. 6, 402, 1934. (See issue of F.E.Y.).

CHEMICALS FOR THE PETROLEUM INDUSTRY

Sodium Sulfate (Glauber's Salt)

Use—Greases, soaps, treating mixtures.

Form—White crystals, white powder.

Formula—(a) $NaSO_4$, (b) $Na_2SO_4.7H_2O$, (c) $Na_2SO_4.10H_2O$.

Molecular weight—(a) 142, (b) 268, (c) 322.

Specific gravity—(a) 2.671, (b) 1.492, (c) 1.462.

Melting point, °F.—(a) 1,625, (b) 91, (c) 91.

Soluble—Hot and cold water, insoluble in alcohol.

LIMITATIONS

	Per cent
Color	None
Iron	None
Insoluble, max.	0.005
Free alkali	None

Note: Effloresces on exposure to air. Keep in tight containers in a cool place.

Analysis of Crude Petroleum From Artesia Area, New Mexico

Kindly furnish us with analysis indicating yield of products from Artesia, New Mexico, oil of about 37 gravity.—L. C. A.

NEW MEXICO CRUDE OIL
ARTESIA

Gravity, A.P.I.	37.0
Pour—below °F.	5
Sulfur, per cent	0.84
Viscosity S. V. at 100° F., sec.	39

Distillation:	Gravity, A.P.I.	Per cent
Gasoline	57.2	35.2
Kerosene	43.0	4.7
Gas oil	35.4	19.5
Lube dist., non-vis.	30.4 to 26.1	9.3
Medium lube dist.	26.1 to 23.1	6.4
Residue	15.1	21.9
Loss		3.0

From No. 1 Russell, Sec. 35-17s-27e, depth 1,592 to 1,608 feet.

Reference: U. S. Bureau of Mines analyses from N. M. School of Mines Bulletin No. 9: D. E. Winchester, The Oil and Gas Resources of New Mexico.

Grades of Natural Gasoline and Approximate Gravity Range

How many grades of natural gasoline are there? What is the gravity specification? What does 16-70 grade mean and what is its gravity?—F. G.

There are 24 possible grades of gasoline on the basis of the Reid vapor pressure at 100° F., and the volume percentage evaporated at 140° F. in the standard distillation test. The vapor pressure may have a range of four pounds for each grade and 15 per cent evaporated at 140° F. The maximum vapor pressure of the various grades shall be 14, 18, 22, 26, 30 and 34 pounds and the minimum percentage evaporated at 140° F. shall be 25, 40, 55, and 70 respectively. Each grade shall be designated by a maximum vapor pressure and minimum percentage evaporated at 140° F. Thus—Grade 16-70 means 16 pounds per square inch vapor pressure at 100° F., as determined by the Reid method. The 70 means 70 per cent evaporated at 140° F. when tested by the standard distillation test.

However, since the maximum vapor pressure starts at 14 and advances 4 pounds for each succeeding grade there is no regular 16-70 natural gasoline, but it could be included in 18-70 group. The official grades are indicated in the table.

GRADES OF NATURAL GASOLINE
(Evaporated at 140° F. Minimum Percentage Distilled)

	25	40	55	70
Vapor Pressure lbs. per sq. in. at 100° F.	34-25	34-40	34-55	34-70
	30-25	30-40	30-55	30-70
	26-25	26-40	26-55	26-70
	22-25	22-40	22-55	22-70
	18-25	18-40	18-55	18-70
	14-25	14-40	14-55	14-70

In each case the vapor pressure is the first figure and the percentage evaporated at 100° F. is the second.

All natural gasolines meeting the requirements of the 24 grades of the Natural Gasoline Association of America would probably be included in a range of A.P.I. gravity from 66 to 100. There is no gravity specification and the gravity of each grade may vary over a wide range.

Confining the gravity to the grades, "70 per cent off at 140° F.," the gasoline would be included in a spread of 80 to 100° A.P.I. A product having 16 pounds vapor pressure and 70 per cent off at 140° F. may have a gravity range of 80 to 88 A.P.I.

FIELD OPERATIONS

Summarizing the Week's Developments

CALIFORNIA—A well flowing at the rate of 15,000 bbls. per day through a quarter-inch orifice, but which is estimated to be good for 60,000 bbls. a day if put on open flow, was brought in in the Southeast Coalinga field in Fresno County. It is listed as the largest producing well in the state since 1910 in which year the Lakeview gusher in the Maricopa Flats district in Kern County came in.

KENTUCKY—A 200-bbl. McClosky lime well was completed in the old Utica area in southern Daviess County. Seven new wells have been started in the Utica district. In the Spottsville pool in Henderson County, where the largest McClosky lime well in western Kentucky was completed, several new operations are in progress. The Birk City pool has slowed down. Only two new operations were announced there in the past week.

NEW MEXICO—The discovery well in Section 12-17-36e, Lovington area, Lea County, was being completed as a gas well at 3,986 feet, total depth, due to mechanical difficulties preventing further deepening of the hole. Observers agreed it was not drilled deep enough to test oil possibilities of the area, and two offsets were being started. A 1,200-bbl. well was completed in the Jal sand area, southeastern Lea County, a big producer for that sector.

KANSAS—Lansing lime production in the South Trapp pool, Barton County, was extended one-half mile to the southeast. The Coralena pool, Russell County, was extended three-fourths of a mile northwestward. The pool opener in Section 18-17-1w, McPherson County, made an initial potential of 419 bbls. of oil. The Wilkins pool extensioner in Section 13-17-10w, Ellsworth County, had a natural initial potential of 381 bbls. Extension of the Dopita pool in Rooks County was indicated by showing of oil in an outpost in Section 25-8-18w.

OKLAHOMA—The seventeenth producer was completed in the Ramsey pool, Payne County, for potential of 7,032 bbls. from Wilcox sand. It is at the southeast corner of the producing area, and further development in that direction is anticipated. Deep wildcats were started in Section 12-14-3w, north of Edmond in Oklahoma County, and Section 30-3n-8w, southwestern Grady County.

TEXAS—The K.M.A. pool in North Texas will see the end of pipe line proration if other pipe line companies will relieve the Texas Co. of a part of its well connections in which event the Texas Co. agrees to run 100 per cent of well allowables. Extensions of pools were recorded in Gaines, Hockley, Yoakum, Ector and Crane counties in West Texas. A new producing area was discovered 1½ miles northwest of the Cheek field in Jefferson County, Gulf Coast district.

LA-ARK-TEX—In coastal Louisiana an outpost to the Bancroft field in Beauregard Parish was indicating an extension. Lafitte in Jefferson County was extended by a 1,764-bbl. well. In the Shreveport field in North Louisiana a well inside the city limits tested 204 bbls. of oil in 12 hours. Another good well was completed in the Magnolia pool in Columbia County, Arkansas.

ILLINOIS—Among the 85 new oil wells in the state one Benoist sand well started at 1,885 bbls. and one McClosky lime well started at 1,000 bbls. a day, both in Marion County. The average initial of all the wells was 244 bbls. per day.

Completions in All Fields

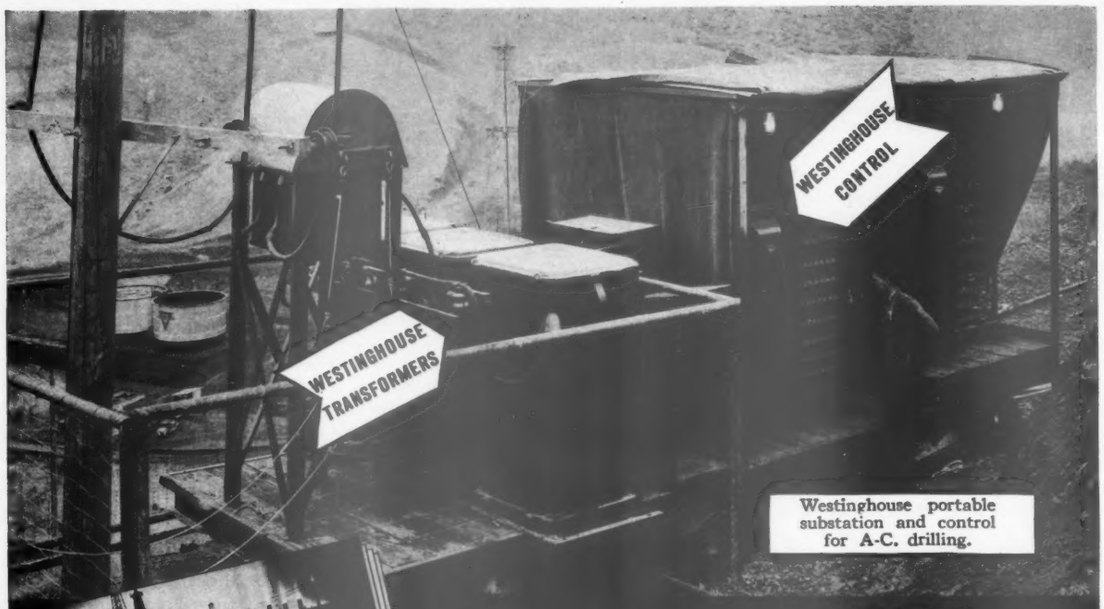
(Week Ending November 26, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa., and W. Va.	41	13	3	57	3,222	4,279
Ohio	3	7	7	17	881	1,134
Indiana	0	0	0	0	121	107
Kentucky	4	1	1	6	813	649
Illinois	85	0	14	99	1,851	274
Michigan	22	0	6	28	851	736
Kansas	17	2	5	24	1,459	2,405
Oklahoma	18	1	6	25	1,541	2,430
Texas:						
North Central Texas	29	0	26	55	2,814	2,511
West Texas	22	0	4	26	1,776	2,446
Texas Panhandle	6	2	0	8	515	741
East Texas	17	0	0	17	1,620	2,176
East Central Texas	2	0	6	8	318	658
East Texas Border	0	0	0	0	123	306
Gulf Coast Texas	18	0	5	23	1,203	1,422
Southwest Texas	31	2	22	55	1,971	2,941
Total Texas	125	4	63	192	10,340	13,201
North Louisiana	5	1	1	7	575	601
Gulf Coast Louisiana	8	0	2	10	439	416
Total Louisiana	13	1	3	17	1,014	1,017
Arkansas	4	0	2	6	222	163
Montana	2	1	0	3	101	211
Wyoming	2	0	1	3	143	100
Colorado	0	0	1	1	13	18
New Mexico	6	1	1	8	506	641
Utah	0	0	0	0	3	4
California	7	0	6	13	1,163	1,371
Total United States	349	31	119	499	24,244	28,740
Total previous week	356	36	95	487		
Week ending Nov. 27, 1937	405	52	109	566		

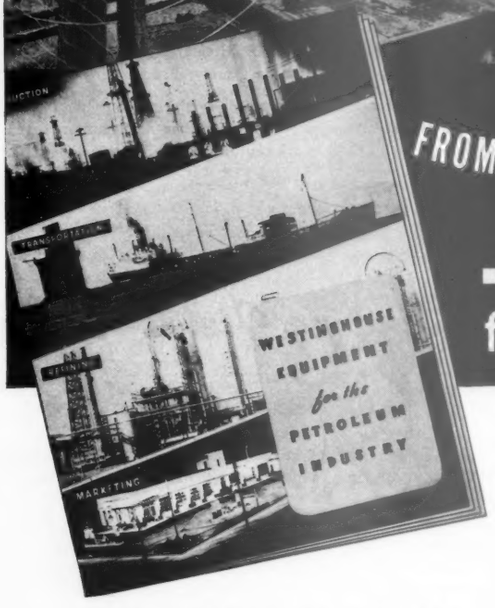
Outstanding Fields--Highlights

(Week Ending November 26, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	21	37	9	3,057	871	15,025
Wasson-Bennett	9	27	3	1,049	180	11,050
Ector County	8	52	3	2,457	1,370	44,596
Winkler County	4	11	4	4,617	1,733	36,065
Howard-Glasscock	4	21	3	2,457	1,027	14,852
East Texas	24	46	17	848	25,822	370,765
OKLAHOMA						
St. Louis	6	30	3	261	723	26,250
Oklahoma City	3	8	0	0	1,085	104,375
KANSAS						
Barton County	4	18	1	844	385	10,125
Stafford County	4	16	4	1,283	206	4,440
Rice County	4	15	3	1,560	1,241	30,418
Russell County	3	19	3	1,709	1,166	20,109
NEW MEXICO						
Lea County	8	86	6	722	1,930	100,570
LA-ARK-TEX						
Rodessa, La-Ark-Tex	2	12	1	425	1,045	64,670
Cotton Valley, La. (deep)	1	19	0	0	99	10,075
Schuler, Ark.	4	17	2	2,210	122	17,230
Jennings, La.	2	16	1	400	125	23,736
MICHIGAN						
Freeman	2	29	2	900	34	8,537
ILLINOIS						
Central Illinois	68	430	84	20,736	1,751	89,260
CALIFORNIA						
Wilmington	4	15	4	2,988	582	95,110
KENTUCKY						
Birk City	3	13	2	395	98	3,986



Westinghouse portable substation and control for A-C. drilling.



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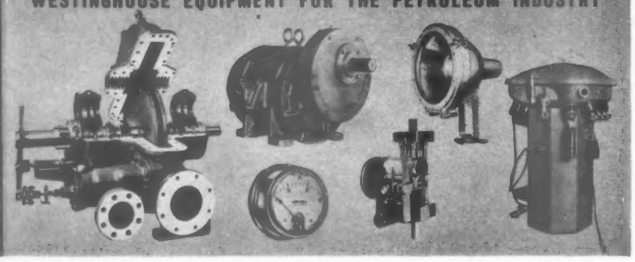

Illinois and Kentucky

By STAFF CORRESPONDENT

84 New Oil Wells in Basin Pools; Pipe Line Extension

MATTOON, Ill., Nov. 28.—Ninety-nine wells were completed in Illinois in the past week in review, 85 oil wells and 14 dry holes. Twelve counties are charged with the failures. In the same period only 90 new operations were announced, these including locations, rigs, and wells on which drilling had been started. The unusually small number of new operations may be attributed in part to the Thanksgiving holiday. The new oil wells averaged 244 bbls. a day in initial production.

Marion County had 38 new oil wells and two dry holes. The oil wells produced 9,421 bbls. initially. Fayette County was second with 34 oil wells and no dry holes, and a total initial production of 7,399 bbls. In Richland County seven oil wells were completed with a total initial output of 2,443 bbls., and no dry holes. Wayne County was responsible for four new oil wells and 1,112 bbls. of new daily production, and Clay County for three oil wells, 356 bbls. of initial production and one dry hole. A 5-bbl. well in Crawford County, which is outside the basin, completed the list of new oil wells. Of dry holes McDonough, Crawford, Macoupin, Clinton, Edgar, Morgan, Shelby, Perry, and Hamilton had one each. No gas wells were brought in during the week.

The Central States Pipe Line Co., a Texas Co. subsidiary, which already is operating a pipe line from the Lake Centralia-Salem field to the Indian Refining Co. plant in Lawrenceville, is laying a 6-inch line from Boylston in Wayne County to the main line, connecting with the latter at a point below Clay City in Clay County. The company has a 4-inch line from Boylston to a loading rack 4 miles distant which has been serving wells in the Fairfield area, and this line will be connected to the new 6-inch line. The whole line will be 23 miles in length.

Following is the list of completions reported during the past week. The initial production represents the first 24 hours' well output unless otherwise stated.

Completed Wells

In Clinton County, Milhahan No. 1 Halitt, NE NE NE Section 24-1n-1w, Benoist sand at 1,375-83 feet, total depth, shot with 5 quarts, pumped 80 bbls. of oil and 7 bbls. of water.

In McDonough County, W. I. Cole and others No. 2 J. L. Williams, NW SE SE Section 6-4n-4w of fourth meridian, dry and abandoned at 502 feet.

In Crawford County, Frost and others No. 1 Mann, SE cor. SW NE SW Section 12-5n-13w of second meridian, dry and abandoned at 1,035 feet. Mahutska Oil Co. No. 1 Seaney, NE cor. SW SW Section 6-6n-11w, dry and abandoned at 1,610 feet. Porterville Oil Co. No. 1 Faught, NE NW SW Section 36-8n-13w, pay sand at 925-40 feet, 5-bbl. well after a shot.

In Macoupin County, Phillips Petroleum Co. No. 1 Gillis, NW NE NW Section 15-11n-8w, Trenton lime top at 1,686 feet, total depth 1,828 feet, dry and abandoned.

In Edgar County, Elmer Lapsey No. 1 Roll, SE NW NE Section 17-14n-13w, of second meridian, dry and abandoned at 670 feet.

In Morgan County, Alexander Oil Co. No. 2 Cocksin, NW NW SW Section 25-15n-9w, dry and abandoned at 450 feet. It had a gas showing at 315 feet and an oil showing at 358-70 feet.

Fayette County Completions

In Fayette County, in the Louden field, Rosenthal No. 5 Washburn, NE SW NW Section 30-6n-3e, Weiler sand at 1,600-15 feet, total depth, pumped 210 bbls. Rosenthal No. 6 Washburn, C N half SW NW Section 30-6n-3e, Weiler at 1,596-1,615 feet, total depth, pumped 195 bbls. Smith & Sample No. 3 Garner, SW NW¼ NW Section 30-6n-3e, Weiler at 1,612-17 feet, total depth, pumped 42 bbls. in seven hours, its pipe line allowable for one day. The Texas Co. No. 3 Bennyhoff, NW cor. NE NW SE Section 30-6n-3e, Weiler at 1,602-22 feet, total depth, pumped 99 bbls. Texas No. 4 Bennyhoff, NE cor. SW NW NE Section 30-6n-3e, Weiler at 1,603-22 feet, total depth, pumped 100 bbls.

Magnolia Petroleum Co. No. 9 Clow, NW SE NE Section 5-7n-3e, Benoist sand at 1,525-48 feet, total depth, pumped 156 bbls. Carter Oil Co. No. 2 Hopper, SW NE SE Section 6-7n-3e, Benoist at 1,554-77 feet, shot with 40 quarts, pumped 372 bbls. Carter No. 1 Edith Quade, NE cor. SW SW Section 6-7n-3e, Weiler sand at 1,415-80 feet, total depth, shot with 40 quarts, pumped 218 bbls. Carter No. 3 Townsend, NW NW NW Section 7-7n-3e, Weiler sand at 1,541-72 feet, total depth 1,475 feet, shot with 40 quarts, swabbed 40 bbls. through casing. Sam Hunt No. 1 Owens, NW cor. SE NW NW Section 8-7n-3e, Benoist at 1,504-31 feet, total depth, shot with 40 quarts, flowed 600 bbls. Papoose Oil Co. No. 3 Owens, NW SW NW Section 8-7n-3e, Benoist at 1,557-70 feet, shot with 15 quarts, swabbed and flowed 196 bbls. in 12 hours, then flowed 380 bbls. in 24 hours. Carter Oil Co. No. 1 Ed Harper, SW SW NW Section 17-7n-3e, Weiler at 1,504-34 feet, total depth 1,537 feet, shot with 40 quarts, pumped 160 bbls. Sherman and others No. 12 Burtschi, SW NE SE Section 18-7n-3e, Weiler at 1,507-31 feet, total depth 1,533 feet, pumped 50 bbls. Sherman and others No. 12 Burtschi, SW NE SE Section 18-7n-3e, Weiler sand at 1,507-31 feet, total depth 1,533 feet, pumped 50 bbls. Carter Oil Co. No. 1 Thomas Mills, NW SE NE Section 19-7n-3e, Weiler at 1,470-1,546 feet, total depth 1,556 feet, shot with 30 quarts, swabbed 281 bbls. through casing. Dixie Oil Co. No. 1 B. Arnold, NE cor. NW NW NE Section 19-7n-3e, Weiler at 1,484-1,523 feet, total depth, pumped 35 bbls. in 18½ hours. Carter No. 1 Lewis Ripley, NW NW NW Section 29-7n-3e, Weiler at 1,566-71 feet, shot with 20 quarts, pumped 119 bbls. Carter No. 2 Ripley, SE NE NW Section 29-7n-3e, Weiler at 1,531-68 feet, total depth 1,572 feet, shot with 40 quarts, swabbed 258 bbls. through casing. Central States No. 4 McKenzie, NW NW NE Section 29-7n-3e, Weiler at 1,534-96 feet, a stray sand at 1,618-29 feet, and Benoist at 1,643-64 feet, all saturated, total depth 1,666 feet, pumped 330 bbls. Jarvis Brothers No. 2 Homans, SE SE NE Section 31-7n-3e, Weiler sand at 1,537-60 feet, total depth, pumped 350 bbls. Deep Rock Oil Co. No. 1 Schaub, NW NE SW Section 32-7n-3e, Weiler at 1,592-1,603 feet, total depth, estimated good for 100 bbls. Jarvis No. 1 Homan, SW SW NW Section 32-7n-3e, Weiler at 1,553-71 feet, total depth, pumped 430 bbls. Jarvis No. 1 Joint Stock Land Bank, NW NW NE Section 33-7n-3e, dry and abandoned at 1,904 feet. Weiler sand at 1,602-11½ feet, showed some saturation.

Carter Oil Co. No. 1 Griggs, SW SE SW Section 10-8n-3e, Benoist sand at 1,600-16 feet, showed fair saturation, total depth 1,620 feet, plugged back to 1,560 feet and shot with 60 quarts in Weiler sand at 1,520-56 feet, flowed 530 bbls. Carter No. 4 Larimore, SW SE SW Section 11-8n-3e, stray sand at 1,524-36 feet, shot with 10 quarts, pumped 74 bbls. Weiler sand lay at 1,426-54 feet and Bethel at 1,498-1,510 feet. Carter No. 1 Nora Workman, SE SE NW Section 14-8n-3e, Weiler sand at 1,484-1,531 feet, shot with 60 quarts, flowed 336 bbls. through casing in six hours and later flowed 900 bbls. through tubing in 24 hours. Carter No. 1 J. B. Tucker, NW NE NW Section 27-8n-3e, Bethel sand at 1,566-91 feet, total depth 1,594 feet, shot with 50 quarts, pumped 225 bbls. Ray Fisher and others No. 3 Rhodes, NE NW SE Section 27-8n-3e, stray sand at 1,558-69 feet, shot with 15 quarts, pumped 160 bbls. Ray Johnson No. 2 Rhodes, SW cor. NE NW SE Section 27-8n-3e, Bethel sand at 1,579-1,603 feet, shot with 20 quarts, pumped 150 bbls. Carter Oil Co. No. 2 Fair, SW SW SW Section 29-8n-3e, Bethel sand at 1,580-92 feet, shot with 10 quarts, pumped 87 bbls. Carter No. 3 Kimbrell, SE SE NW Section 29-8n-3e, Bethel sand at 1,471-96 feet, shot with 40 quarts, pumped 129 bbls. Merrick & Apperson No. 3 Botterbusch, NW SW SW Section 29-8n-3e, Weiler at 1,485-92 feet, total depth, shot with 10 quarts, flowed 121 bbls. Carter Oil Co. No. 1 J. H. Smith, NW SW SE Section 31-8n-3e, shot with 20 quarts at 1,496-1,516 feet, Weiler sand, pumped 67 bbls. The well had been drilled to 1,602 feet and plugged back. Bethel sand at 1,592-1,602 feet showed salt water. Carter No. 2 J. H. Smith, SE SW SE Section 31-8n-3e, Bethel sand at 1,572-87 feet, shot with 20 quarts, flowed 256 bbls. Carter No. 1 Winton Taylor, NE NE SE Section 33-8n-3e, Bethel at 1,580-89 feet, total depth, shot with 10 quarts, pumped 110 bbls.

In Shelby County Black and others No. 1 Hopkins, SE NW SE Section 32-10-4e, was dry and abandoned at 1,918 feet; Fredonia lime topped at 1,850 feet.

In Perry County L. C. Simmell and others No. 1 Kimsey, NW cor. SE SE Section 6-5s-1w, topped McClosky lime at 1,550 feet and drilled to 1,605 feet. The well was dry and abandoned.

In Wayne County, K. D. Holland No. 1 Bruce, SE NW NW Section 5-3s-7e, was abandoned as dry after drilling to 3,440 feet and plugging back to 3,340 feet and testing salt water. Roseclaire lime was topped at 3,310 feet. Rockhill No. 2 Twist B, SE cor NE Section 5-3s-7e, had pay at 3,323-42 feet, total depth and flowed 400 bbls. the first four hours and was shut in.

In Wayne County, Texas Co. No. 2 Cravens, SE NE NE Section 32-2s-7e, had McClosky lime at 3,030-52 feet and flowed an estimated 312 bbls. Texas No. 3 R. Lyons, SW SW SW Section 33-2s-7e, topped McClosky at 3,319 feet and had pay at 3,319-26 feet, total depth 3,352 feet. It flowed 400 bbls.

Marion County

In Marion County, Centralia pool, Blair and others No. 1 Eggering, NE SE SW Section 12-1n-1e, had Benoist sand at 2,190 feet and drilled to 2,315 feet. It was dry and abandoned. In the Lake Centralia area, Rockhill No. 5 Foster, SE SW SW Section 7-1n-2e, had Benoist sand at 1,817-36 feet, shot with 16 quarts, pumped 130 bbls. Hollingsworth No. 2 Kirkbrenner, SW cor. SE SE SW Section 5-1n-2e, Benoist at 1,757 feet, total depth 1,808 feet, flowed 126 bbls. in six hours. Texas No. 1 Johnson, NE NE SW Section 5-1n-2e, Benoist at 1,698-1,754 feet, flowed 343 bbls., through 1-inch choke. Texas No. 2 O. Johnson, C SE SE SW Section 5-1n-2e, Benoist

Illinois Fields

HIGHLIGHTS OF THE WEEK: The Texas Co. is increasing its pipe line facilities with a 23-mile extension from its main line south into the Fairfield area in Wayne County. The best wells of the week were a 1,845-bbl. Benoist sand completion and a 1,000-bbl. McClosky lime well, both in Marion County.

Daily production of new pools, 89,260 bbls.; old pools, 12,987 bbls.; total 102,247 bbls., a new peak for 1938.

Completed oil wells, 85; operations including locations, rigs and drilling wells, 585.

at 1,754-94 feet, flowed 164 bbls. through 1-inch choke. Texas No. 2 V. Kolkbrenner, SE cor. SW Section 5-1n-2e, Benoist at 1,758-63 feet, flowed 215 bbls. Texas No. 2 Raccoon School, SE cor. NE Section 6-1n-2e, Benoist at 1,724-58 feet, pumped 45 bbls. Texas No. 3 Raccoon School, SE cor. NE Section 6-1n-2e, Benoist 1,724-61 feet, a small producer shut in. Ohio Oil Co. No. 5 Murray, SW SW SE Section 7-1n-2e, Benoist at 1,845-70 feet, pumped 62 bbls. Rockhill No. 7 Foster, SE SE SE Section 7-1n-2e, Benoist at 1,823-44 feet, pumped 125 bbls. Texas Co. No. 1 G. Johnson, SW SE NE Section 7-1n-2e, Benoist sand at 1,744-75 feet, flowed 156 bbls. Rockhill No. 3 Foster, NW SW SW Section 8-1n-2e, Benoist at 1,802-29 feet, pumped 135 bbls. Texas No. 2 W. Carr, SW SW NW Section 8-1n-2e, Benoist at 1,758-87 feet, flowed 285 bbls. through 57/64-inch choke. C. Pierson No. 1 Williams, SW NE NW Section 9-1n-2e, Benoist at 1,830-60 feet and saturation at 2,072-81 feet, total depth, flowed 624 bbls. Kingwood & Bell No. 1 Dodson, NE SE NW Section 16-1n-2e, McClosky pay at 2,136-76 feet, total depth 2,271 feet, pumped 25 bbls. Duncan Brothers No. 1 Fyke, NW SW NE Section 17-1n-2e, McClosky 2,120-74 feet, salt water and small showing of oil, shut down. Tide Water Associated Oil Co. No. 3 Miller, SE NE NE Section 18-1n-2e, Benoist at 1,871-1,902 feet, pumped 125 bbls.

Salem Area

In the Salem area, Marion County, Mid Valley Steel Co. No. 1 Bedwell, SE NE SW Section 5-2n-2e, dry and abandoned at 2,195 feet. McClosky lime was found at 2,160-64 feet, Benoist sand was topped at 1,975 feet. Magnolia Petroleum Co. No. 1 C. D. Phillips, SE SW NE Section 16-2n-2e, Benoist at 1,835-75 feet, flowed 212 bbls. in 17½ hours. Kingwood Oil Co. and Bell No. 7 D. Shanafelt, NW NE NE Section 20-2n-2e, Benoist at 1,765-1,804 feet, flowed 234 bbls. Shell Petroleum Corp. No. 2 Young Heirs, NW NE SE Section 20-2n-2e, Benoist at 1,734-74 feet, flowed 200 bbls. Texas Co. No. 4 N. Young, NE SE NE Section 20-2n-2e, Benoist at 1,768-74 feet, flowed 198 bbls. through 1-inch choke. Magnolia Petroleum Co. No. 2 Chitwood, C N half SE SE Section 21-2n-2e, Fredonia lime pay at 2,108-13 feet, pumped 108 bbls. of oil and 12 bbls. of water. Magnolia Petroleum Co. No. 7 D. A. Shanafelt, SW NE NW Section 21-2n-2e, Benoist at 1,791-1,837 feet, flowed 264 bbls. Magnolia No. 5 J. H. Young, SW SW SW Section 21-2n-2e, Benoist at 1,775-87 feet and Aux Vases at 1,787 feet, total depth 1,867 feet, flowed 480 bbls. from Benoist and Aux Vases. Magnolia No. 15 J. H. Young, SE NW SW Section 21-2n-2e, Benoist at 1,784-1,816 feet, flowed 192 bbls. Claro & Robinson No. 1 Chitwood, C S half NE SE Section 21-2n-2e, McClosky lime at 2,120-37 feet, acidized with 500 gallons, pumped 100 bbls. of oil and 20 bbls. of water. Magnolia No. 10 J. H. Young, SW SW NW Section 28-2n-2e, Benoist at 1,723-77 feet, flowed 216 bbls. Magnolia No. 12 J. H. Young, NE SW NW Section 28-2n-2e, Benoist at 1,767-1,800 feet, flowed 192 bbls. Magnolia Petroleum Co. No. 8 J. R. Young, SE NW NE Section 29-2n-2e, Benoist at 1,731-85 feet, flowed 240 bbls. J. Mitchell No. 1 F. Lee, NW SE NE Section 29-2n-2e, Benoist at 1,746-74 feet, pumped 64 bbls. Texas Co. No. 1 R. Shanafelt, NW NE NE Section 29-2n-2e, Benoist at 1,734-79 feet, flowed 229 bbls. through 1-inch choke. Texas Co. No. 2 Shanafelt, NE NE NE Section 29-2n-2e, Benoist at 1,740-75 feet, flowed 1,885 bbls. through 1-inch choke. Texas Co. No. 2 Talford, SE SE NE Section 29-2n-2e, Benoist at 1,736-65 feet, flowed 46 bbls. Texas Co. No. 6 Williams, SW NW SE Section 31-2n-2e, Benoist at 1,642-95 feet, flowed 140 bbls. through a quarter-inch choke. Texas No. 1 J. Freisner, NW NE NW Section 32-2n-2e, Benoist at 1,648-1,712 feet, flowed 56 bbls. Texas Co. No. 2 Freisner, NE NE NW Section 32-2n-2e, Benoist at 1,660-1,700 feet, flowed 108 bbls. Texas No. 3 Stonecipher, SW SW SE Section 32-2n-2e, Benoist at 1,740-90 feet, flowed 130 bbls. through 5/16-inch choke. Ohio Oil Co. No. 1 Loyd, SE NW NE Section 33-2n-2e, Benoist at 1,807-50 feet, flowed 132 bbls. Wiser Oil Co. No. 5 Weems, SE NW NW Section 33-2n-2e, Benoist top at 1,781 feet, total depth 1,926 feet, flowed 425 bbls. Wiser No. 6 Weems, C W half NW NW Section 33-2n-2e, McClosky pay at 1,958-98 feet, total depth 2,002 feet, flowed 1,000 bbls. It was shut in.

Richland and Clay

In Richland County, Pure Oil Co. No. 1 Hohman A, C W half NW NW Section 15-2n-8e, had showings and pay at various depths from 2,922 to 3,057 feet and flowed 542 bbls. Pure No. 4 Joseph Ullum, C E half SW SE Section 16-2n-8e, had pay at 2,998-3,003 feet and streaks of pay at 3,020-95 feet, acidized with 5,000 gallons, it flowed 833 bbls. Pure No. 3 J. J. Smith, C S half NE SE Section 17-2n-8e, pays at 2,993-3,091 feet, acidized with 5,000 gallons it pumped 269 bbls. of oil. Pure Oil Co. No. 2 Ring-Burr, NW NE SW Section 17-3n-9e, McClosky at 2,940 feet, total depth 3,015 feet pumped 18 bbls. Pure No. 1 Howard Cagel, SW SW SE Section 23-4n-9e, saturated sand at 2,590-2,611 feet, pumped 567 bbls. Ste. Genevieve limestone was topped at 2,897 feet and Fredonia at 2,907 feet, total depth 3,007 feet. It was plugged back to 2,611 feet.

Texas Co. No. 4 M. Baird, SE SW NE Section 22-4n-10e, had McClosky pay at 3,022-27 feet, total depth 3,043 feet, acidized with 5,000 gallons, pumped 115 bbls. Texas No. 1 Elliott, NE NW SE Section 22-4n-10e, pay at 2,992-98 feet, acidized with 5,000 gallons, pumped 99 bbls.

In Clay County, Olsen Drilling Co. No. 3 Madding, C S half SE SW Section 1-2n-7e, was dry and abandoned at 3,067 feet. McClosky lime was topped at 3,060 feet and was acidized with 2,000 gallons but showed only salt water. Pure Oil Co. No. 1 Stella Billington, C W half SE NE Section 27-1n-7e, McClosky pay at 3,101-20 feet, acidized with 1,000 gallons, flowed 300 bbls. Kingwood Oil Co. No. 1 Katy Cox, SE SE NW Section 13-3n-6e, pay at 2,966-72 feet, flowed 56 bbls.

In Hamilton County, Weinert No. 1 Hamilton County Land Co., C S half SE NW Section 32-3s-7e, was dry and abandoned at 3,460 feet. Ste. Genevieve lime was topped at 3,297 feet.

New Wildcat Operations

In Union County B.P.T.U. Syndicate made a location for No. 1 Hanks, C S half NE NW Section 14-12s-1w.

In Jackson County, W. R. Hays No. 1 Bouchet, NE NE SE Section 11-7s-2w, was drilling at 690 feet.

In St. Clair County Mossbaugh No. 1 J. C. Miller, SE SE SW Section 31-1s-7w, was shut down at 1,234 feet. It topped Mississippi lime at 503 feet and got a hole full of water at 5,745 feet.

In Clinton County, Lon Huddleston and others No. 1 W. A. Allen, SE cor. SW NE Section 28-3n-2w, is a location. Kesl and others No. 1 Marbaum, NW NE SE Section 12-3n-3w, was drilling at 793 feet.

In Montgomery County, Swords & McDougal No. 1, NW NW SW Section 16-10n-1w, location.

In Clark County Lee Warner No. 2 R. C. Eckard, 344 feet from north line and 270 feet from east line, NW SW Section 34-11n-14w, of second meridian, spudded at 20 feet. H. R. Snavely No. 1 S. M. Schalfield, SE NE SE Section 6-12n-11w, moving in material.

In Jefferson County, Beaver and others No. 1 Eichman, NE cor. Section 28-2s-1e, rigging up rotary. Dr. Moore and others No. 1 Novak, NE NE SW Section 28-2s-1e, set 10-inch pipe at 68 feet, shut down at 515 feet. McQueen and others No. 1 Sorenson, NE NE NW Section 5-2s-2e, driving 12½-inch casing at 76 feet. Milam and others No. 1 Sanders, C NE SW Section 28-1s-2e, location.

In Wayne County Iroquois Oil & Gas Co. No. 1 St. Leger, C NW SE Section 34-1s-9e, pits.

In Marion County Cameron and others No. 1 Dolly Hess, 75 feet from north and east lines of NE NW NE Section 19-1n-2e, derrick up. Richland Corp. No. 1 T. B. Beach, SW NW NW Section 1-2n-1e, rigging up rotary. Ed L. Hohmans No. 1 Shanafelt school, 941 feet from south line and 115 feet from east line, SE quarter Section 8-2n-2e, drilling at 210 feet.

In Clay County Thompson Drilling Co. No. 1 Tanner, SE SE SE Section 29-3n-7e, derrick up.

In Marion County Transwestern Oil Co. No. 1 Land Bank, SE NW SW Section 24-4n-2e, material on ground.

In Montgomery County, Soliday & Sams No. 1 Moon, NE cor. SW Section 11-7n-3e, fishing for tools at 557 feet.

In Shelby County Jackson & Fisher No. 1 Von Behren, NW NW NW Section 3-10n-5e, location.

McClosky Lime Well in South Daviess Starts at 200 Bbls.

OWENSBORO, Ky., Nov. 28.—A 200-bbl. well from McClosky lime pay, total depth 1,887 feet, in the old Utica district, in southern Daviess County, was the feature of the week in Western Kentucky. In the Birk City field no wells were completed on the Daviess County side, but across the river in Henderson County the important test of Phillips Petroleum Co. and W. E. Hupp on the H. E. Jones land was abandoned at a total depth of 2,140 feet after it failed to produce following an acid treatment. The recently opened Spottsville district had a failure in the McClosky lime in Magnolia Petroleum Co. No. 1 W. H. Negley, total depth 2,250 feet, but it may be tested in the upper Cunningham sand. Magnolia Petroleum Co. is getting ready to start an offset to the discovery well in the Spottsville pool. The first producer was the largest McClosky lime well yet found in Western Kentucky. Ralston & Sales are building rig on land of Miss Annie Stewart, the largest landowner in Spottsville. Magnolia Petroleum Co.'s Cordie Neal test was to be drilled into the McClosky as soon as cement sets. A 3-foot saturation had been cored and the pay will be acidized after it has been drilled in.

The well of Claudell and others on the C. G. Bennett lease in the Birk City pool which had been acidized in the McClosky lime at a total depth of 1,887 feet, began flowing oil and a lot of gas, continuing the flow for an hour and 45 minutes. A heavy atmosphere kept the gas close to the ground and it is reported that about 100 Birk City residents were obliged to leave their homes and remove themselves to an area outside the gas-filled neighborhood. The gas broke up a Negro dance and drove some of the dancers and the orchestra across the river. Flares on nearby leases were extinguished in time to avoid serious damage. No estimate was made on the potential production of the well which flowed into tanks.

Fred T. Hildt, of Tulsa, and George S. Engle, of Owensboro, will drill a deep test on the Don Moore farm near Owensboro. They have a large block of acreage west of the city. J. T. Akers, Owensboro, has the contract. The Sun Oil Co. and Gulf Refining Co. are interested in the same general territory.

Butler County, Quality district: W. L. McKee No. 1 L. B. Hawkins was rigging up. Silver City district: Barnsdall Oil Co. No. 1 Martha Hawes was a 20-bbl. well in the Jones sand at total depth of 521 feet.

Christian County, Crafton district: Lew Wentz and others No. 1 Cories Bennett is moving in.

Daviess County, Handyville district: A. D. Shaffer and others No. 2 Price Baird Heirs is moving in. Utica district: Beasley Drilling Co. No. 1, Bennett Lot, was estimated for 200 bbls. in the McClosky, at a total depth of 1,887 feet; Major Oil Co. No. 1 Federal Land Bank was rigging up; E. Cordell and others No. 1 Anna Fisher was an abandoned location; Ohio Oil Co. No. 1 Oscar Lively was moving in; Major Oil Co. No. 2 Mrs. Carrie Long had derrick up; Major Oil Co. No. 2 Prudential Insurance Co., L. E. Morris tract, was a location; Major Oil Co. No. 3 Mirilda Wahl, was rigging up. Whitesville district: Ellis & Ashby No. 2 O. L. Greer was a dry hole at 891 feet; Ellis & Ashby No. 1 A. R. Igleheart was drilling at 500 feet.

Hancock County, Easton district: James C. Ellis No. 21 R. A. Richards was a 10-bbl. well in Jett sand; James C. Ellis No. 24 Smith Heirs was a 10-bbl. well in Jett sand.

Henderson County, Birk City district: A. H. Carpenter and others No. 2 Francis Dempewolf was moving in; J. C. Miller, trustee, No. 2 O. W. Rash Heirs, 750-acre tract, was setting surface casing. Spottsville district: Magnolia Petroleum Co. No. 1 Anna Green was moving in (north offset to No. 1 Sam Green); Magnolia Petroleum Co. No. 1 Miss C. Neal cored 3 feet of McClosky saturation and cemented casing.

McLean County, Maxwell district: Ellis & Huff No. 3 Ruth Shockley and others had lost tools and plugged hole; Ellis & Huff No. 4 Shockley and others, location.

EASTERN KENTUCKY OPERATIONS

ASHLAND, Ky., Nov. 28.—One gas well completion marks an unusually light report of operations in the

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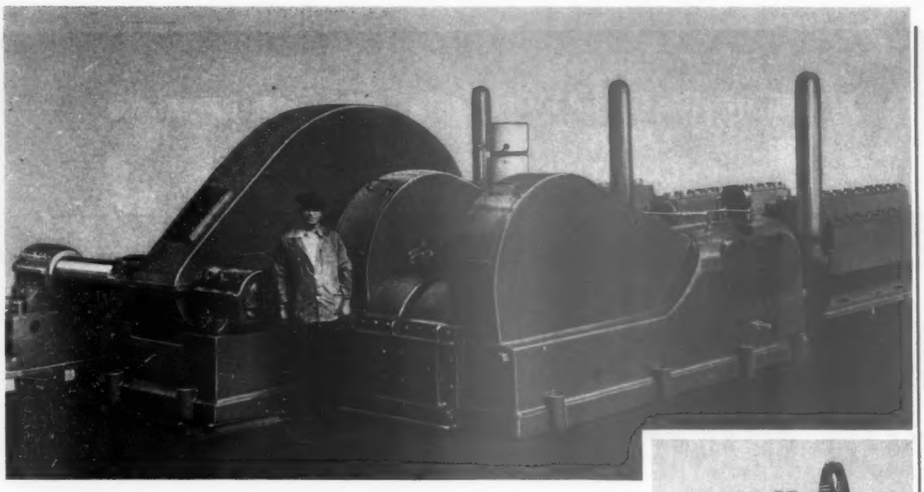

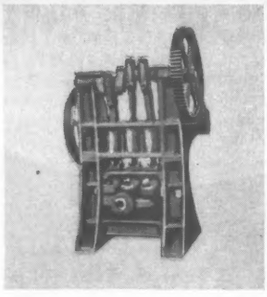

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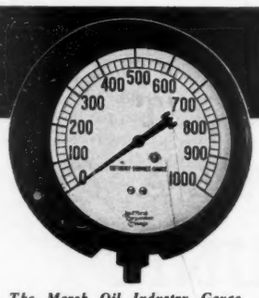

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Particularly in the broad line of Marsh Gauges for the petroleum industry we have combined extreme ruggedness with remarkable accuracy.
The line includes gauges especially designed for: Blenders, Boilers, Burners, Capping, Christmas Trees, Columns, Heaters, Hydrogen Units, Instrument Panels, Piping, Pumps, Reid Vapor Bombs, Scrubbers, Separators, Slush Pumps, Stills, Tanks, Towers, Water Feeders and all other applications in refineries, natural gasoline plants, chemical plants, drilling and production units.
See your supply house for complete details.

JAS. P. MARSH CORPORATION
2065 N. SOUTHPORT AVENUE, CHICAGO

MARSH GAUGES

Eastern Kentucky area. The Thanksgiving holiday plus bad weather delayed field development.

John Salyer completed a well on Coldwater Fork in Martin County, reported to be good for 926,000 feet of gas daily.

In Floyd County, the Kentucky-West Virginia Gas Co. is drilling at 1,427 feet in Salt sand in No. 578, Sherwood Osborne land, on Toms Creek.

In Martin County, Kentucky-West Virginia Gas Co. was down 1,427 feet in Big lime in No. 574, John and Benjamin Sellards land, in the Coldwater Fork region, and had reached the 2,595-foot mark in No. 5191, W. R. Crum land, on Coldwater Fork. The same firm was drilling at 110 feet in sand in No. 5249, Allie Ward land, in the same vicinity.

In Knott County, the Inland Gas Corp. was drilling at 1,662 feet in Salt sand, in No. 203 Curtis Pigman land, on Right Fork of Troublesome Creek, and was rigging up No. 204, Virginia-Kentucky Gas Co. land, nearby. Inland was down 2,010 feet in Maxon sand in No. 205, Kentucky-West Virginia Gas Co. land, on Trace Fork of Troublesome Creek.

No change was reported in the Wheelersburg district of Magoffin County and "no drilling" was the report from the Burton-Oil Springs district in the same county.

CENTRAL OHIO

LIMA, Ohio, Nov. 28.—Out of the crop of gas wells completed in central Ohio, in the past week, only one had an open flow of more than 1,000,000 feet.

In Ashland County, Lake Township, Ohio Fuel Gas Co. No. 2 Edward A. Morris, Section 2, gauged 825,000 feet of gas from the Clinton at 3,070-82 feet.

In Athens County, Lodi Township, A. D. Townsend No. 1 A. W. Brown, Fraction 5, is a small gas well in the second Berea sand at 1,762 feet.

In Gallia County, Green Township, Section 23, Bartlett & Bramnen plugged their No. 1 Thomas H. McCormick at 2,960 feet. A very small showing of oil and gas was found in the Oriskany sand at 2,930-35 feet.

In Guernsey County, Millwood Township, M. J. Purdy No. 1 L. L. Hall, Section 16, is good for 200,000 feet of gas in the Berea at 1,766 feet. In Wills Township, H. P. Muhlbach No. 12 J. W. Stewart, Section 21, was dry in the Berea at 1,342 feet.

In Licking County, Mary Ann Township, George Vandergrift No. 1 W. A. Connor, Lot 5, made 10 bbls. of oil the first 24 hours after a shot from the Berea at 753-66 feet. In Perry Township, Rutlege and others No. 14 W. E. Teagarden, Section 14, is a 2-bbl. pumper in the Berea at 614 feet.

In Noble County, Marion Township, Atkinson Oil & Gas Co. No. 1 J. L. Atkinson, Section 26, was dry at 1,810 feet.

In Stark County, Plain Township, White & Hall No. 2 Nelson Stambaugh, Section 4, is a gas well gauging 1,200,000 feet from the Clinton sand at 4,531-55 feet.

(Continued on Page 94)

"Soil Corrosion and Pipe Line Protection"

This new book on the subject of soil corrosion and pipe line protection, edited by Dr. Scott Ewing, has been recently published by the American Gas Association. The volume contains a collection of information relating to the subject and is largely the result of sifting and collecting in an organized manner the vast amount of data heretofore published.

The Corrosion Committee of the American Gas Association started a program some years ago on research on pipe coating and corrosion. Much of the original data collected has been presented before meetings of the association. Other information has been collected in this new book and it should prove of much interest to manufacturers of pipe, pipe coatings, pipe line equipment, laboratory and electrical apparatus and those having general interest in this problem. The book contains 267 pages and is well illustrated, and includes numerous references to articles covering the various subjects.

"Soil Corrosion and Pipe Line Protection" may be purchased through the Book Department of The Oil and Gas Journal at the established price of $2.50, express prepaid (postage extra outside the United States), and a copy will be forwarded promptly upon receipt of check or money order for that sum. Where payment or company purchase order is not included, the book will be sent c.o.d. to avoid delay.

Texas and Louisiana Gulf

By
NEIL WILLIAMS

New Pools Indicated in Two Texas Gulf Coastal Counties

HOUSTON, Tex., Nov. 28.—While Humble Oil & Refining Co. No. 1 M. C. Todd, a semiwildcat, was being placed on production to open a new producing area 1½ miles northwest of the Cheek field, Jefferson County, interest along the Gulf Coast was diverted to the Mount Houston area, Harris County, where casing was being cemented on another wildcat which had logged favorable showings to indicate the opening of a field.

The probable pool opener is Jack Frazier and others No. 1 L. E. Griffith, northeast of Houston in the Adam Smith Survey, Harris County. This test, drilled in search of Cockfield or Yegua production, is bottomed in the latter horizon at 8,348 feet, and 5½-inch casing is being cemented at 4,089 feet to test the Frio sand which showed favorable indications on an electrical survey at 4,074-96 feet. Approximately 16 sidewall cores between this interval, showed soft sand with an oil odor and ether cut. This is the third showing to have been logged. A drill stem test in the Cockfield section at 7,980-8,016 feet showed 250 pounds of working pressure and 270 feet of gas-cut mud, while sand and shale with an oil odor was cored at intervals from 8,275-87 feet. However salt water was logged at 8,287-8,302 feet and it was decided that the showings did not warrant a production test following the running of the electrical survey.

Mount Houston has been looked upon as a favorable prospect for a number of years, and the present test is approximately a half mile northeast of four dry holes, all of which were abandoned just above the present total depth. The well has attracted much attention and if it is productive it will provide an incentive for shallow drilling along this trend, which heretofore has been considered too far inland to offer much possibilities from the Frio section. Production from this formation is generally found from 25 to 30 miles down dip from the present location.

Humble Oil & Refining Co. No. 1 M. C. Todd, in the Hildebrandt Survey, 1½ miles northwest of the Cheek field, was washed in Friday morning and is flowing into the tanks at the rate of 30 bbls. of 36.5-gravity oil per hour through a quarter-inch choke, with tubing and casing pressure equalized at 1,200 pounds. Production is from 2 feet of lower Frio sand bottomed at 7,719 feet, with 7-inch casing cemented at 7,708 feet. Whether this test opens a new pool, or is an important extension to the Cheek field to the southeast will be determined by future development. It is generally assumed that the well is on the same structure, as the producing sand in the Todd well is practically the same as in the wells to the southeast. Humble Oil & Refining Co. is wasting little time in developing the area as the rig is being moved to No. 2 Jefferson Land Co., 1½ miles northeast of the Todd well, and about a half mile east of No. 1 Jefferson Land Co., a dry hole bottomed at 8,458 feet.

League City Field

The potentiality of the newly-opened League City field, Galveston County, is expected to be determined within a few days as three outpost tests are nearing the discovery sand. George Echols No. 1 Stewart-Ross, a half mile due west of the discovery well, is reported to have cored sand showing oil in the Frio formation at 8,682-8,700 feet, and additional cores are being taken. This test topped the Round Marginulina at 7,389 feet. Flat Marginulina at 7,542 feet and the Marginulina No. 7 at 7,755 feet. On these markers the well is about normal with the original well, which is producing below 9,100 feet. Two miles north of the discovery well, H. C. Cockburn No. 1 O. H. Haardt, is drilling in shale below 8,600 feet, and is still checking about 280 feet higher than the discovery well. Due east of the discovery, Midstates Oil Co. No. 1-A Maco Stewart is drilling in shale below 8,456 feet. At a recent hearing the Railroad Commission at Galveston it was estimated that present knowledge of the area shows a producing area of 3,000 to 5,000 acres and that the ultimate recovery will be approximately 45,000,000 bbls. of oil.

A new producing area one-quarter mile north of the prolific Hastings field, Brazoria County, was indicated as H. F. Alexander No. 2 Blummer-Steiner, H.T.&B. Survey No. 28, Block 161, cleaned itself through a quarter-inch choke from a new sand topped at 6,180 feet and bottomed at 6,192 feet. The showing was logged below the water level of the field and is no doubt due to a fault or graben condition. No report had been received on the amount of fluid the well was making.

Two wildcat locations were announced for Brazoria County. One and a half miles southwest of the Hastings field, Davis B. MacDaniel is preparing to spud No. 1 John E. Rowold in the M. V. O'Donnel Survey, about 5 miles northwest of the town of Alvin. Southwest of Almeda in the H.T.&B. Survey, Abstract No. 510, John G. Mayo and others have derrick up for No. 1 Joe D. Hughes. In the Anchor area, Humble Oil & Refining Co. No. 1 Masterson, George Robinson Survey, is drilling in sandy shale below 7,802 feet. The Discorbis was topped at 6,893 feet, Heterostegina at 7,217 feet and the Marginulina at 7,627 feet.

In the Francitas field, Jackson County, Crosby Drilling Co. was running an electrical coring test preparatory to running casing in No. 1 Broughton, a half mile north of the discovery well. Oil sand cored at 7,388-98 feet, showed 2.6 per cent saturation and on a 14-minute drill-stem test at 7,391-7,414 feet, the well tested 20 pounds of working pressure, 1,500 feet of 42.7-gravity oil and 30 feet of slightly brackish water. The discovery well, drilled by Texas Co., was a distillate producer at approximately the same depth. In the same county, but located in the West field, Magnolia Petroleum Co. No. 5-A West flowed 248 bbls. per day through a three-sixteenths inch choke with tubing pressure 650 pounds and casing pressure 850 pounds. Production is coming from perforated casing at 5,116-20 feet. The completion extends the field 1,320 feet due west.

Northwest of Louise, Wharton County, Crown Central Oil Co. was preparing to make a production test of a sand logged in No. 1 Babcock and others, a wildcat in the Sam P. Middleton Survey. The well was drilled to a contract depth of 5,514 feet, and the sand to be tested is thought to carry gas. In the Hungerford area, Humble Oil & Refining Co. No. 1 Duncan, A. Edgar Survey, was dry and abandoned at 8,021 feet.

Ohio Oil Co. No. 1 Carlson and others, a north offset to the discovery well of the North Markham field, Matagorda County, showed salt water on two production tests through perforated casing at 7,759-62 feet and at 7,730-32 feet. The perforations have been squeezed off and the well is to be retested.

Housh & Thompson No. 1 E. B. Clary, a wildcat, northwest of the Conroe field, Montgomery County, has proven disappointing, as it continues to flow by heads making an estimated 2 bbls. of fluid per hour, of which 35 to 40 per cent is salt water and the balance oil. The well is being tested on a one-sixteenth inch adjustable choke with tubing and casing pressure ranging from 1,500 to 1,750 pounds. The well is producing from 6 feet of Conroe sand, the top 3 feet carrying gas and the bottom 3 feet oil. The bottom of the hole is thought to be near the water level.

Cedar Point Field

The Cedar Point field, Galveston Bay, offshore from Chambers County, was extended one location south as Standard Oil Co. of Texas and others prepared to test No. 3-118 State. Broken sand showing gas was topped at 5,934 feet, and oil sand was cored at 5,975-6,005 feet, the total depth. Seven-inch casing was cemented at 5,974 feet. The Discorbis was topped at 5,075 feet. Heterostegina at 5,375 feet, Round Marginulina at 5,555 feet and the Flat Marginulina at 5,585 feet.

On the extreme west side of the Fairbanks field, Harris County, Amerada Petroleum Corp. and Stanolind Oil & Gas Co. were preparing to make a production test at No. 2 Peters, W. K. Hamblin and T. Hogan surveys. This well is bottomed at 7,920 feet with 5½-inch casing cemented at 7,548 feet, and preparations were made to test sand logged at intervals at 6,963-7,240 feet. The sand is believed to be the same as that which produces on the extreme east side of the field, generally referred to as the Rossyln area.

In the Eureka field, Harris County, Tide Water Associated Oil Co. is preparing to spud No. 1 M. A. Roy, about a half mile southwest of production and approximately 1,500 feet northwest of the same company's No. 1 H. H. Ford, recently abandoned below 8,110 feet. Slight showings were logged in the latter test and by drilling up-dip the company expects to find commercial production.

South Louisiana

In coastal Louisiana, another important extension was promised the rapidly spreading Bancroft field, Beauregard Parish, as George E. Lilly and others No. 1 W. K. Rice, Section 15-6s-13w, topped the upper gas sand at approximately 7,185 feet and was coring ahead for discovery horizon at 7,300 feet.

Texas Co. No. 1 Wax Bayou, the second test to be drilled in the Bateman Lake field, St. Mary Parish, tested salt water through perforated casing at 10,907-20 feet. This is the approximate depth from which the discovery well is producing. In the Horseshoe Bayou field, the same company was drilling plug from 9⅝-inch casing cemented in No. 2 State at 11,631 feet. The well is located in Section 37-17s-9e, and the company will attempt to drill the hole to 16,000 feet.

The Lafitte field, Jefferson Parish, was extended with the completion of Texas Co. No. 12 Lafitte, Section 20-17s-24e. Bottomed in oil sand at 10,145 feet, production was obtained by perforating the casing at 10,025-75 feet, and the well flowed 1,764 bbls. per day through a three-eighths inch choke.

In the Lake Long field, La Fourche Parish, Fohs Oil Co. No. 6 State has been killed after the well started making distillate. The well was originally completed through perforated casing at 9,340-60 feet, for an initial production of 84 bbls. of 49-gravity oil per day through a quarter-inch choke with tubing pressure 3,000 pounds and shut-in casing pressure 2,800 pounds. Gas-oil ratio was 13,143 to 1. A bottom-hole choke was installed and the well started flowing 72 bbls. of distillate and 2,860,000 feet of gas per day.

Southwest of Hahnville, St. Charles Parish, Texas Co. has derrick up for another interesting wildcat. It is on the Louisiana Land & Exploration Co. lease on the Paradis prospect, Section 39-14s-20e.

On the Henderson salt dome, St. Martin Parish, Texas Co. No. 11 St. Martin Land Co., Section 21-8s-7e, was tested through perforated casing at 8,060-70 feet, and in 34 minutes tested mud, gas and salt water. In the same parish, in Section 15-14s-12e, Shell Petroleum Corp. No. 1 Hazel Burdin was preparing to core ahead after recovering salt water on a drill stem test at 9,828-33 feet, the total depth.

In St. Landry Parish, Herton Oil Co. No. 1 Thistlephilte Lumber Co., Section 60-4s-4e, has been aban-

(Continued on Page 81)

Southwest Texas District

By
F. L. SINGLETON

Important Field Extensions and New Pays Add Reserves

CORPUS CHRISTI, Tex., Nov. 28.—Reserves were added to the Southwest Texas district in the past week as important extensions and new producing horizons were opened in several of the newer producing areas.

In the Sun field, Starr County, Circle Oil Co. No. 1 Olivares, a half mile north of the discovery well, is attempting to complete in a new sand that showed favorable indications on a drill stem test. The sand was logged at 5,113-19 feet, and casing was cemented on bottom at 5,150 feet, after a drill stem test showed 150 feet of oil and 550 pounds of working pressure. This is the fourth sand to have been cored as a previous test at 4,867-81 feet, 4,908-21 feet and at 4,560-73 feet showed favorable results. The field was extended a half mile northwest as Sun Oil Co. No. 1 Olivarez, Section 239, flowed 132 bbls. per day through a 5/32-inch choke from a new sand at 4,905-10 feet.

Locations for two more tests were announced by Sun Oil Co. Offsetting Circle Oil Co. No. 1 Olivarez, No. 2 McKinney is located in the A. J. Smith Survey, Section 242, while 2 miles northwest of the field, derrick is being built for No. 1 N. R. Montalvo in the Los Retachez grant, Juan Jose Sais Survey, Share No. 9.

Approximately 3,700 feet north of the discovery well of the Kelsey field, Jim Hogg County, Humble Oil & Refining Co. No. 3 Bass is bottomed at 5,380 feet, and 7-inch casing was cemented at 5,146 feet. A slight showing was reported to have been logged in a new sand at 4,900 feet, but the well is expected to be completed in the discovery horizon at 4,700 feet where a drill stem test showed good results. Southwest of the field about a mile, Navarro Oil Co. is preparing to spud No. 1 J. Garza. The two fields are located north and south of each other and some geologists are of the opinion that they are on the same structure.

La Rosa Extension

The La Rosa field, Refugio County, was being extended 4,000 feet to the southwest as Hewitt & Daugherty No. 1 Rooke, Section 6, Jose and Jose Maria Aldrete grant, prepares to test after the well flowed oil on a drill stem test. Sand showing oil was cored at 5,888-92 feet and at 5,896 feet. The hole is bottomed at 5,903 feet and 7-inch casing was cemented on bottom following a 17½-minute drill stem test at 5,887-5,903 feet which showed 345 pounds of working pressure and the well flowed pipe line oil. Offsetting Rutherford Oil Corp. No. 1 Schirmer, recently completed to open a new 6,300-foot sand a half mile northwest of the field, Geophysical Service, Inc., No. 1 Michna is standing cemented with 5½-inch casing on bottom at 6,357 feet following a drill stem test at 6,315-29 feet which showed 360 feet of oil and 450 pounds of working pressure in 20 minutes.

Union Producing Co. No. 1 Brown, located in the heart of the Agua Dulce field, Nueces County, has established a new drilling record for the state as it is drilling ahead below 12,815 feet, surpassing the mark formerly held by the Gulf Oil Corp. which drilled No. 103 McElroy in the McElroy field, Crane County to a depth of 12,786 feet. The last string of protection casing was cemented at approximately 8,000 feet. No showings have been reported, and the well is drilling in the lower Yegua formation.

The 5,300-foot horizon of the South Alice field, Jim Wells County, was apparently extended 1 mile northeast as casing was being cemented on bottom at 5,402 feet in Tom Graham and others No. 1 Bankers Mortgage after a drill stem test at 5,307-39 feet tested 22 feet of oil and 290 pounds of working pressure. Should the well fail to produce there, it will be plugged back to 5,100 feet where a drill stem test showed oil-cut drilling mud and 1,250 pounds of working pressure. The well is 1,750 feet southeast of Mosser and others No. 1 Presnall, a shallow gas well, drilled during the early life of the field.

Ten miles southwest of the town of Freer, Duval County, Magnolia Petroleum Co. No. 2 Duval County Ranch Co., G.C.&S.F. R.R. Survey, Section 189, is being placed on the pump to open another shallow field for the Laredo district. Sand showing oil was cored at 1,442-51 feet, the total depth, and the well swabbed 1,100 feet of oil and 70 feet of drilling mud.

In the Weser area, Goliad County, Steinberger Petroleum Co. No. 1 Albrecht is testing, flowing an estimated 8 to 10 bbls. of wash water and oil per hour by heads through a quarter-inch choke with working pressure on the tubing ranging from 100 to 200 pounds. The casing was reperforated last week in the Cook Mountain horizon at 5,238-45 feet.

Pure Oil Co. No. 1 State located in Laguna Madre Bay, offshort from Kleberg County, can be classified as the discovery well of a new gas field, although the comany continues to test, in the hope of converting the well into an oil or distillate producer. Perforations were made in the 7-inch liner cemented at 8,280 feet, at 7,210-30 feet, 7,239-56 feet, and 7,269-78 feet, and on a 20-minute drill stem test the well tested 1,650 pounds of dry-gas pressure. Perforations were then made at 7,290-7,310 feet and at 8,200-12 feet and the well tested 1,525 pounds of working pressure and an unestimated amount of salt water. The lower perforations have been squeezed off and additional perforations are expected to be made up the hole.

In the McAllen area, Hidalgo County, R. E. Harding and others No. 1 Card, a distillate producer, completed two weeks ago at 7,440-65 feet, is reported to have been killed preparatory to testing another sand at 6,902-25 feet.

In the Balcones Fault Line district and in the Tangleford area, Lee County, Fred Pederson and others No. 1 Brown was scheduled to run casing after making an electrical survey of the hole, bottomed in the Edwards lime at 6,410 feet. It is reported by the operators that a good showing of oil appeared in the ditch while coring at 6,401-10 feet. The probable top of the Edwards lime is 6,398 feet.

Unpromising Wildcat

In Frio County, little hope was held that Humble Oil & Refining Co. No. 1 Houston would make a commercial producer in the Edwards lime as several drill stem tests showed meager results. Three tests made at 5,219-28 feet, 5,228-36 feet and at 5,257-69 feet showed a small amount of oil and considerable sulfur water. The well is coring ahead below 5,300 feet, and is expected to be abandoned during the week.

In Bastrop County, Paul Teas No. 1 Grizzard, another Edwards lime test is shut down at a plugged back depth of 7,165 feet, awaiting complete transfer of the well to the Continental Oil Co. who will perforate the casing for another test in the upper section of the lime formation. The hole was drilled to a total depth of 7,177 feet where it tested sulfur water.

Two miles northeast of New Berlin, William H. Smith Survey No. 62, Guadalupe County, Wellington Oil Co. of Delaware No. 1 Albert Mattke is being watched with interest as a good showing of oil was logged in the Austin chalk at 1,630-40 feet. The Austin chalk was topped at 1,560 feet and cored to 1,668 feet. No drill stem test was made as the hole will be carried to the Edwards lime.

In McLennan County, Roy Clements is preparing to resume drilling at No. 1 Carl Horstman, D. C. Walters Survey, which has been shut down for several months at 1,251 feet. According to the operator the well is checking much higher than several dry holes drilled in that vicinity.

COMPLETIONS IN SOUTHWEST TEXAS

(24-hour production)

Caldwell County

Dale field: Ralph Ogden No. 7-B Lackey, 2,558 feet, abandoned. Luling field: Louis Crouch No. 3 Rafel Rios, 2,167½ feet, 45 bbls., pumping.

Calhoun-Victoria Counties

Heyser field: Gulf Oil Corp. No. 10-B Traylor, perforated casing 5,463-67 feet, dry gas well. Gulf Oil Corp. No. 2 Williams, perforated casing 5,479-84 feet, 194 bbls., eighth-inch choke.

Duval County

Benavides field: Arkansas Fuel Oil Co. No. 4 Wolfe, perforated casing 5,365-76 feet, 165 bbls., 11/64-inch choke. Hiawatha Oil & Gas Co. No. 12 Southland Life Insurance Co., 6,200 feet, abandoned. Humble Oil & Refining Co. No. 3 Moyer, perforated casing 5,335-36 feet, 68 bbls., 7/64-inch choke. Casa Blanca field: Transwestern Oil Co. No. 13 Duval County Ranch Co., sand 1,172-82 feet, 40 bbls., pumping. Eagle Hill field: Al Buchanan No. 5 Duval County Ranch Co., sand 1,514-21 feet, 70 bbls., pumping. Fitzsimmons field: Amerada Petroleum Corp. No. 1 Fitzsimmons, perforated casing 4,344-49 feet, 333 bbls., quarter-inch choke. H. J. Porter No. 7-A Fitzsimmons, perforated casing 4,273-76 feet, 148 bbls., five-sixteenths inch choke. Sun Oil Co. No. 4 Brueggemann, perforated casing 4,286-95 feet, 137 bbls., 9/64-inch choke. Hoffman field: Cox & Hamon and others No. 8 Cuellar Brothers, sand 2,807-11 feet, 65 bbls., jetting. Darby Petroleum Co. No. 2 Heintze, 2,802 feet, 35 bbls., pumping. Parr & Delaney No. 1 Heintze, 2,827 feet, abandoned. S. K. and C. and others No. 1-A Sutherland, 2,847½ feet, 10 bbls., pumping. Lundell field: Government Wells Oil Co. No. 32 Lundell, sand 1,511-28 feet, 81 bbls., three-eighths inch choke. Tesoro field: Arkansas Fuel Oil Co. No. 5 Cuellar, 5,235 feet, abandoned.

Hidalgo County

Samfordyce field: H. C. Dean No. 1 Sheldon, perforated casing 2,935-50 feet, 10 bbls., quarter-inch choke. Henshaw Brothers No. 2 Guerra, perforated casing 2,859-65 feet, 12 bbls. per hour, quarter-inch choke.

Jim Wells County

South Alice field: H. H. Howell and others No. 21 Lindsay & Reed, perforated casing 5,307-15 feet, 108 bbls., three-eighths inch choke.

Live Oak-McMullen Counties

Ezzell field: Sure Oil Co. No. 4 Ford, perforated casing 1,513-18 feet, 120 bbls., pumping. Munson field: Bishop Oil Co. and others No. 3-A Nueces Land & Live Stock Co., 1,216½ feet, abandoned. Oakville field: Ohio Fuel Supply Co. No. 1 McGriff, 2,814 feet, dry gas well. Calliham field: Marion Production Co. No. 8 Lark, 1,059 feet, abandoned.

Nueces County

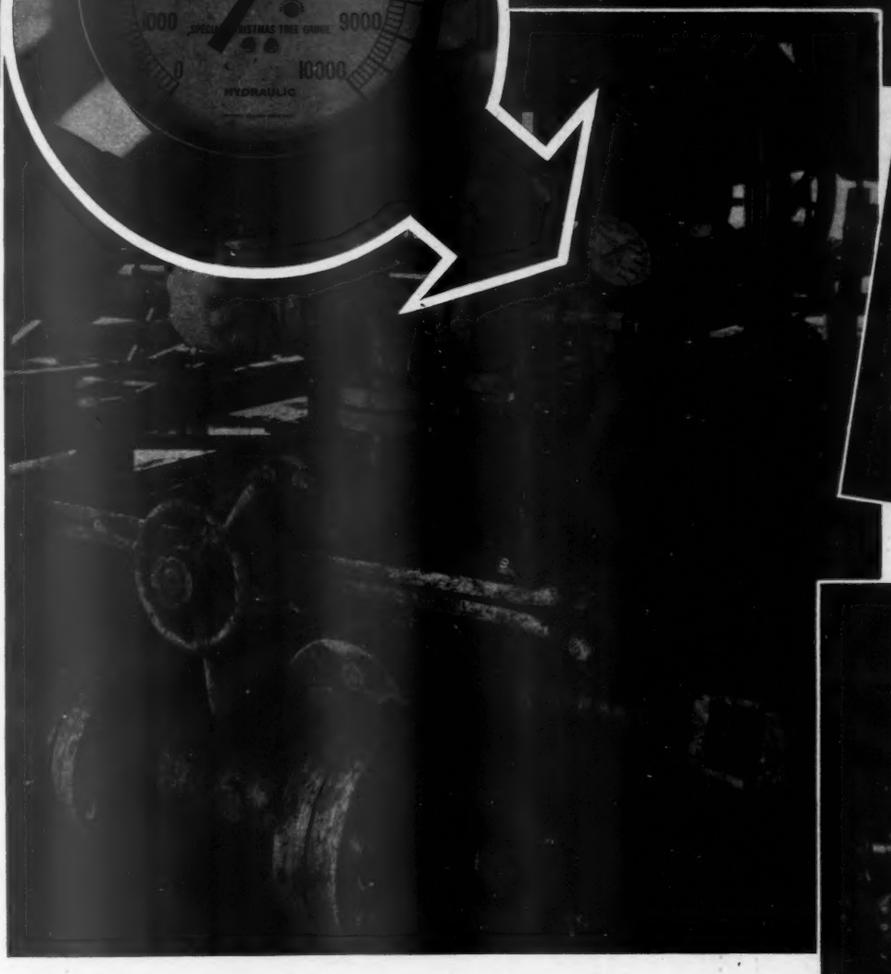
Agua Dulce field: Shelton and others No. 1 Sands, 4,075 feet, 67 bbls., three-eighths inch choke. Luby field: Seaboard Oil Co. No. 14 Luby, perforated casing 5,169-72 feet, 159 bbls., eighth-inch choke. Clara Driscoll field: Conservative Oil Co. No. 2 Flynn, perforated casing 5,419-26 feet, 131 bbls., 9/64-inch choke. Southern Minerals Corp. No. 13 King, perforated casing

(Continued on Page 74)

SUN OIL COMPANY'S No. 1 BAYSHORE FARMS DEVELOPS

6300 POUNDS

ON THE TUBING!



Sun Oil Company's No. 1 Bayshore Farms, Palacious, Texas, develops world's record pressure on Cameron Xmas Tree.

WELL DRILLED, DRILLED-IN AND COMPLETED THROUGH CAMERON CONTROL EQUIPMENT.

Smashing all known records for high completion pressures, Sun Oil Company's No. 1 Bayshore Farms, Palacios, Texas, recorded 6,300 pounds on the tubing when washed into production October 16, 1938. Flowing on a 7/64" choke this abnormal well, bottomed at 9,278 feet, showed 6,100 pounds on the tubing as indicated by the photograph above. Many veteran oil operators in the adjacent oil country, finding it difficult to credit reports of such tremendous surface pressure, visited the well personally to check its performance.

Exceeding by 1,200 pounds the highest former recorded well pressure (5,100 pounds on Ellender No. 1, Houma, Louisiana), Sun Oil Company's now famous distillate well has presented numerous flow control problems. These are at present successfully being handled by means of the elaborate 10,000 pound test Xmas Tree, and a special multiple Choke Manifold installed beyond the derrick floor. The latter was designed to facilitate the task and increase the safety to workmen in changing chokes and switching well flow from one wing of the Xmas Tree to another.

No. 1 Bayshore Farms was drilled, drilled-in and completed through Cameron Control Equipment. The 10,000 pound test ram-type control manifold, or Xmas Tree, is shown to the right above. Suspended and sealed on the rams of the Control Head is approximately 9,040 feet of 2⅞" O.D. external upset tubing.

Bayshore Farms No. 1 joins the ranks of a number of notable deep, high pressure wells completed through Cameron Xmas Tree Control Equipment in the past few months, including Fohs Oil Company's Buckley-Bourg (4,950 pounds initial flow pressure); Fohs Oil Company's Bay-Baptiste (4,300 pounds initial flow pressure); Fohs Oil Company's State Lake Long No. 4 (4,000 pounds initial flow pressure); and numerous other wells in such high pressure fields as Cotton Valley, La., and Old Ocean, Texas, where flow pressures exceeded 3,000 pounds.

To operators contemplating deep wells in any area, we shall be pleased to provide complete and detailed information concerning the various types of Cameron drilling, drilling-in and completion equipment available to insure safe, positive control of all operations. There is no obligation involved.

CAMERON IRON WORKS, INC.

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EXPORT: 74 Trinity Place, New York, N. Y.

North Louisiana, Arkansas

By GEORGE WEBER

400-Barrel Well Inside City Limits, Shreveport, Louisiana

SHREVEPORT, La., Nov. 27.—With indications of a third oil producer in the deep Bodcaw sand of the lower Marine formation, the Cotton Valley field late in the week continued to hold the interest of tri-state operators. The possible new producer, a southwest edge test, will be the first marker for Bodcaw oil in that section of the field.

The Shreveport field of Caddo Parish gained its most promising extension with the completion of a 1½-mile south outpost well, bringing for the first time the production of the field inside the city limits of Shreveport.

Completion of a good producer in the Magnolia field, Columbia County, Arkansas, activity in Schuler, Smackover, Rainbow, an extension to Miller County Rodessa, and the drilling of four wildcats marked considerable activity in Arkansas.

Shreveport Extension

The Shreveport field was extended southward to within the city by the completion of Rodessa Oil & Refining Co. No. 1 Chandler, C SW NE Section 34-18-14. The 1½-mile outpost well, set 7-inch casing at 5,580 feet after a drill stem test at 5,540-45 feet showed recovery of 250 feet of oil and 5,000,000 feet of gas in 10 minutes, and a second test at 5,545-49 feet recovered six joints of oil in 10 minutes.

Casing was perforated at 5,546-50 feet and the well was brought in flowing 204 bbls. in 12 hours through a quarter-inch choke. A favorably low gas-oil ratio, in view of the gas volume shown in the drill stem tests, was measured at about 3,640 feet per barrel, with total gas production estimated at 1,500,000 feet daily. Tubing pressure on the producer stood at 1,300 pounds at completion, but no casing pressure gauge was available. Gravity of the oil is reported at 43 degrees, corrected.

C. D. Loe No. 1 Meyer, located in the southeast corner of Section 33-18-14 has not yet been completed, having been plugged back from a total depth of 5,631 feet to 5,583 feet. Operators are arranging to drill out and perforate shortly, for attempted completion of the Shreveport field's sixth producer. R. L. Bauman No. 1 Slattery, a gas distillate well was producing at latest reports through a five-sixteenths inch choke, making in excess of 425 bbls. of distillate daily, at a large gas-oil ratio. Considerable gas has been flared at this well since its completion several weeks ago.

A Caddo Parish wildcat, Arkansas-Louisiana Gas Co. No. 1 Webb, C NW SW Section 4-16-13, in the Lucas area southeast of Shreveport, topped the anhydrite at 4,085 feet, massive anhydrite at 5,355 feet, and was coring lime below 4,875 feet at latest report.

Cotton Valley

An outstanding test in the lower Marine formation is Oliphant Oil Corp. No. 2-B Stewart, a southwest outpost well in the Cotton Valley field. Following abandonment of the same operator's No. 1-B Stewart, two locations due west of the present active test, the No. 2-B Stewart topped the D sand at 8,594 feet, showing salt water, and found the Bodcaw sand at 8,684 feet. The hole was cored to 8,692 feet, and the 8-foot core showed poor saturation of 15 to 19 per cent, and porosity varying from 9.7 to 16.3 per cent, showing oil. A string of 7-inch casing has been set at the top of the sand at 8,684 feet, and a completion will be attempted in the Bodcaw sand this week. The testing of oil in the Bodcaw indicates that this may make an oil producer, thus proving the apparently narrow rim of oil production on the west.

The discovery of this oil production on the flank of the structure was made several months ago by the Stanolind Oil & Gas Co. in a southeast outpost test. A second Bodcaw oil well was later completed in a northwest outpost position. All wells further up dip, which have been completed to date in the Bodcaw sand, are productive of gas and distillate. The Oliphant No. 2-B Stewart is shown to be running 86 feet lower than the Standard Oil Co. No. 1 Stewart, to the northwest, and 89 feet lower than the Mid States Oil Corp. No. 1 Welori Lumber Co., which discovered oil in the D sand several months ago, four locations due east of the Oliphant test.

Shongaloo

The Magnolia Petroleum Co. has staked a third location for a deep test in the old Shongaloo gas field, where several months ago Magnolia opened new deep gas and distillate reserves at 9,000 feet. The same company's No. 4 Branton in the same area is fishing for stuck drill stem at 5,472 feet. In the Carterville field, another old shallow gas pool, Magnolia is shut down for rig repairs at a total depth of 9,604 feet, having encountered some shows at shallower depths.

Production by Pool

Estimated daily gross production all companies week ending November 25, 1938:

NORTH LOUISIANA

	Barrels
Bellevue	615
Caddo light	4,005
Caddo heavy	2,600
Converse	560
Cotton Valley heavy	85
Cotton Valley light	*10,075
Cross Lake	650
De Soto and Red River	1,280
Elm Grove	335
Haynesville	3,000
Holly	90
Homer	2,615
Lisbon	6,235
Pleasant Hill	100
Rodessa	29,990
Sarepta-Carterville	†415
Sligo	1,210
Sugar Creek	295
Urania	2,900
Zwolle	3,820
Total	70,875

SOUTH ARKANSAS

Buckner	1,300
Champagnolle	1,405
El Dorado	1,825
Lisbon	270
Miller County	360
Nevada	630
Rodessa	4,760
Schuler	17,230
Smackover light	2,010
Smackover heavy	15,600
Stephens	550
Troy	1,115
Urbana	1,160
Village	1,135
Total	49,350

Texas side of Rodessa field 29,920 bbls. daily.

*4,065 bbls. is distillate.
†100 bbls. is distillate.

Arkansas

In the Magnolia pool of Columbia County, South Arkansas, the Atlantic Refining Co. completed No. 1 L. Garrett, C NW SW Section 13-17-20 for another good Smackover lime producer. The well gauged 27 barrels per hour through a quarter-inch choke with tubing pressure of 1,175 pounds and casing pressure of 1,225 pounds after casing was perforated at 7,580-7,622 feet. Together with the oil, a gas production estimated at 750,000 feet daily is being made. The oil averages 38.8 degrees A.P.I. gravity. Total depth of the well is 7,627 feet.

F. W. Martin and others definitely extended the producing limits of the Miller County sector of Rodessa to the north this week by completion of the No. 1 Watts, in the southeast corner, SW NE Section 2-20-26. The well produced 423 bbls. per day of crude and 100 bbls. per day of salt water through a 1-inch choke. A packer was set on the tubing at 6,215 feet and tubing pressure was recorded at 100 pounds. Total depth is 6,235 feet, after plugging back from the old total depth of 6,252 feet.

December Allowables

The Department of Conservation of Louisiana has made the following production allowables for the month of December:

SOUTH LOUISIANA

Field—	Barrels
Abbeville	630
Anse La Butte	250
Bancroft	600
Basile	5,130
Bateman Lake	360
Bayou Choctaw	1,800
Bayou Des Allemands	600
Bayou Mallet	200
Bay St. Elaine	900
Bird Island	500
Black Bayou	3,000
Bosco	5,000
Bunkie	600
Caillou Island	14,850
Cameron Meadows	3,000
Chacahoula	450
Charenton	3,600
Creole	700
Darrow	2,800
Dog Lake	900
Edgerly	200
English Bayou	5,300
Evangeline	20,500
Garden Island Bay	2,000
Gibson	2,700
Gillis	2,500
Gueydan	400
Hackberry, East	6,300
Hackberry, West	3,600
Harang	4,500
Horseshoe Bayou	720
Iberia	16,000
Iowa	14,500
Jeanerette	6,300
Jefferson Island	350
Lafitte	15,000
Lake Barre	1,440
Lake Long	1,300
Lake Pelto	1,100
Lake Wastington	900
Leeville	4,500
Lockport	1,000
North Crowley	1,400
Port Barre	2,250
Quarantine Bay	1,000
Raceland	1,350
Roanoke	2,850
St. Martinville	630
Sorrento	360
South Houma	300
South Roanoke	300
Starks	540
Sulphurmines	4,000
Sweet Lake	950
University	1,000
Venice	2,000
Ville Platte	4,000
Vinton	1,170
White Castle	1,700
Woodlawn	900
Total South Louisiana	183,680

NORTH LOUISIANA

Cotton Valley (Bodcaw 1,500, Holloway 5,000)	6,500
Lisbon	7,500
Rodessa	31,000
Shreveport	900
Remaining fields	18,000
Total North Louisiana	63,900
Grand total State of Louisiana	247,580

Wildcats

In Columbia County, the Tide Water-Seaboard No. 1 J. T. Beene, 8 miles southeast of the Magnolia pool was drilling ahead after finding a showing of oil at 7,305-10 feet. Total depth at latest report was 7,590 feet.

Northeast of the El Dorado field in Union County, Fohs Oil Co. is drilling in red shale below 5,583 feet. In the same county, Snuggs, Sebersky & Bylick are

(Continued on Page 81)

Oklahoma Operations

By
DAL DALRYMPLE

Seventeenth Well at Ramsey Makes 7,032-Bbl. Potential

Completion of the seventeenth producer in the Ramsey pool in Payne County was a feature of field activity in Oklahoma the past week. The newest Ramsey well is Mid-Continent Petroleum Corp. and associates No. 2 Gray, NW SE SW Section 18-18-2e, at the south end of the proven area.

Wilcox sand was topped at 4,768 feet, total depth 4,793½ feet. The well flowed 370 bbls. of oil the first hour, and 285 bbls., 265 bbls., 267 bbls. and 270 bbls. respectively in the next four hours and was shut in. It was rated potentially at 7,032 bbls. daily. Production was from Wilcox sand at 4,768-93½ feet, total depth. Other tops were: Mississippi lime, 4,505 feet; Hunton lime, 4,555 feet; Sylvan shale, 4,608 feet, and Viola lime, 4,700 feet. Gas gauged from 3,800,000 feet to 4,300,000 feet during the test.

Additional tests undoubtedly will be started at Ramsey, but locations had not been announced. With the southeast trend of the pool undefined, it was expected work would be continued in that direction. Further extension of production to the southeast would force tests on leases offsetting the community block, on which all 17 producers are located.

Decisions at interesting deep tests in the Norman and Noble areas in Cleveland County were delayed. Gulf Oil Corp. No. 1 Taylor, SE SE SW Section 1-7-2w, 1 mile north of the Noble pool discovery well, had salt water at 7,676 feet, total depth, and operators were preparing to plug back and perforate casing at about 6,880-6,900 feet to test a show of oil in sand.

Nels Burton and others No. 1 Norman, NW NW NE Section 17-9-2w, north of Norman, had swab lost in the hole, and the crew was fishing. It was bottomed at 7,695 feet, with casing set on bottom. Swab was lost when crew had bailed to about 5,000 feet from top. Fluid in the hole was coming from perforations at 7,540-50 feet.

Ed V. Parsons and associates have started work at No. 1 McKenny, SE SE SW Section 30-3n-8w, southwest corner of Grady County. It is on a reflection seismograph high, and thought to be on a northwest-southeast trend from the deep wells completed some months ago to the southeast in northern Stephens County.

Work was started at a wildcat north of Edmond in Oklahoma County. It is O. A. Walter and others No. 1 Olmstead, C W half SE NW Section 12-14-3w, with location on a surface structure worked in 1930 by Calvin T. Moore. The area also was shot by Amerada and Sinclair Prairie companies, but neither completed a block on the structure. Several major companies hold spreads in the vicinity of the wildcat. The well is to be drilled to 6,500 feet or second Wilcox sand.

Carter Oil Co. and others No. 1 Smith, C SE SW Section 26-5-8w, Grady County wildcat, was coring ahead below 5,470 feet. A light showing of oil was found in cores from 5,435-65 feet.

Wildcat Activity

Smith & Rogers No. 1 Wolfe, NE NE SW Section 36-7-5, wildcat west of the Dora pool in Seminole County, had pay at 2,492 feet, was bottomed at 2,985 feet, pumped 17 bbls. of oil and 40 bbls. of water in 24 hours and was completed.

Carter Oil Co. No. 1 Hamilton, C W half NE SW Section 32-4-9, originally completed as a small oil producer at 6,177 feet, total depth, was plugged back to 5,474 feet after oil production declined and was recompleted for 22,000,000 feet of gas daily. This wildcat opened the Citra pool in southern Hughes County.

Fields & Nagle No. 1 Black, SE cor. Section 31-16-6, an old wildcat north of the Skellyville pool in Lincoln County, was deepened 1 foot to 3,904 feet and swabbed 150 bbls. of oil and some water in 14 hours.

Star Oil & Gas Co. No. 1 Georgia, SE SW NE Section 35-18-4, wildcat in Payne County, had dug cellar and pits.

O. A. Walters No. 1 Olmstead, C E half SE NW Section 12-14-3w, wildcat north of the town of Edmond in Oklahoma County, had dug cellar and pits. It is northeast of the Edmond pool.

Pottawatomie County

Sinclair Prairie Oil Co. No. 3 M-Qua-Ka, SE SW SW Section 11-7-4, St. Louis district, Pottawatomie County, had pay at 4,122 feet, total depth 4,190 feet and pumped 92 bbls. of oil and 130 bbls. of water in 24 hours.

Van Arden No. 1 Atkins, NW NW SE Section 2-7-4, was completed as a 15-bbl. pumper in pay at 3,480-81 feet, total depth.

Magnolia Petroleum Co. No. 2 Martin, NE SE NW Section 34-7-4, had pay at 4,258-60 feet, total depth, and pumped 182 bbls. of oil with 2,000 bbls. of water daily. It was an old well deepened from 4,014 feet.

J. E. Trigg No. 4 Canfield, SE NE SW Section 33-7-5, pumped 154 bbls. of oil and 600 bbls. of water from pay at 4,064 feet, total depth 4,218 feet.

New activity in Pottawatomie County: Watchorn Oil & Gas Co. No. 2 Coleman, NW NE NW Section 33-7-5, location; Alma Oil Co. No. 6 Smith, NE SW NE Section 32-7-5, cellar and pits; Robertson, Taber & Coleman No. 2 Johnson, NE NE SW Section 29-7-5, cellar and pits; Cooper & Reda Pump No. 2 Bewley, SE SE NW Section 36-7-4, location; Raycott Oil Co. No. 1 Kern, SW SW NW Section 5-6-4, building rig.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending November 26, and for the preceding week, was as follows:

	Barrels	
	Nov. 26	Nov. 19
Allen	6,775	6,200
Billings	5,150	5,225
Burbank	7,775	7,825
South Burbank	8,900	8,850
Balance Osage	16,750	16,700
Blackwell district	4,100	4,125
Bristow-Slick	6,625	6,875
Chandler	2,000	2,025
Crescent	3,725	3,750
Cromwell	2,975	3,200
Cushing-Shamrock	10,225	10,200
Duncan district	4,150	4,175
Edmond	4,825	4,875
Fish	3,100	3,125
Fitts	38,750	38,750
Jesse	2,225	2,350
Graham-Fox	4,375	4,425
Gray	875	900
Healdton	9,650	9,775
Hewitt	3,650	3,625
Keokuk	3,925	4,175
Konawa	1,200	1,350
Lucien	8,200	8,175
Moore	4,750	4,725
Oklahoma City	104,375	98,425
Olympic	3,950	4,275
Ramsey	2,450	2,400
Sasakwa	1,325	1,350
Sholem-Alechem	2,475	2,450
Seminole district:		
Bowlegs	8,250	9,150
Carr City	3,150	3,400
Dora	4,675	5,150
Earlsboro	4,500	5,275
South Earlsboro	550	450
East Earlsboro	4,175	4,625
Little River	6,275	7,325
East Little River	800	875
Maud	550	675
Mission	1,275	1,625
Seminole	7,950	8,200
East Seminole	1,600	1,625
Searight	2,575	2,850
Total Seminole	46,325	51,225
St. Louis-Pearson	26,250	24,500
Tatums	2,425	2,625
Tonkawa-Garber-Thomas	4,025	4,075
Wewoka	2,150	2,175
Yale-Jennings	3,725	3,775
Other pools	85,000	84,250
Total Oklahoma	447,150	447,925

Seminole County

Atlantic Refining Co. No. 1 Bowles, NE NW NW Section 22-6-6, Traugh area, Seminole County, an old well bottomed at 3,645 feet, was shot at 3,545-55 feet and pumped 183 bbls. of oil daily.

Charles Newsom No. 1 Smith, NE cor. Section 20-7-6, was bottomed at 4,364 feet and pumped 450 bbls. of oil in 24 hours.

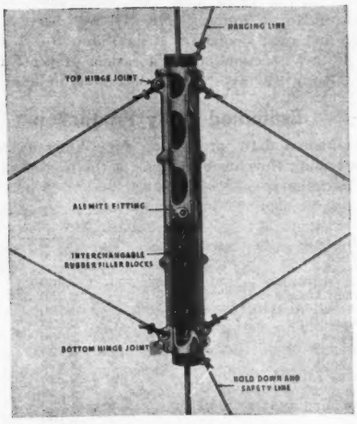
Thompson Brothers No. 1-A Lack, SW NW SE Section 27-7-6, had water in the hole and was abandoned at 2,763 feet, total depth.

Rogers & Rogers No. 2 Baxter, NE NW NW Section 36-7-5, topped pay at 2,944 feet, total depth 2,960 feet, and flowed 16 bbls. of oil in 24 hours.

(Continued on Page 80)

Drilling crew on Gulf Oil Corp. No. 1 Taylor, SE SE SW Section 1-7-2w, Cleveland County, Oklahoma, prepares the core barrel for running into the hole at 7,670 feet

Drilling 10th well without replacement



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December Crude Estimate Is Lower Than Year Ago

The daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in December, 1938, is 3,305,800 bbls. This is 85,500 bbls. (2.5 per cent) less than the estimate for November, and 4 per cent lower than the actual demand for domestic crude in December, 1937. The decline from a year ago is due chiefly to the fact that provision is made for an increase of only 3,400,000 bbls. in gasoline stocks, compared with an actual increase of 6,164,000 bbls. in December, 1937. Ample stocks of distillates and excessive stocks of heavy fuel oils indicate the desirability of reducing runs to a minimum to meet winter heating requirements without an undue increase in gasoline stocks.

Current situation.—Daily average crude-oil production and runs to stills during the four weeks, October 1 to 29, were 3,280,000 bbls. and 3,230,000 bbls., respectively. During this period total crude stocks (including heavy crude in California) declined 5,110,000 bbls., 4,980,000 bbls. of which was in domestic grades. The daily average withdrawal from domestic grades added to the production gives 3,458,000 bbls. as the apparent daily crude demand, which compares with the bureau's estimate of 3,366,800 bbls. daily for October. This apparent excess of 91,000 bbls. daily in crude demand was due primarily to larger runs to stills than were estimated by the bureau and resulted in smaller withdrawals from gasoline stocks than were anticipated.

Motor Fuel

Domestic demand.—The estimate of motor-fuel demand for December, 1938, is 40,100,000 bbls., less than 2 per cent higher than the actual for December, 1937. The composition of this estimate contemplates an improvement in business conditions but a deceleration in the long-time upward trend of gasoline consumption per motor vehicle.

Exports.—The estimate of motor-fuel exports, reflecting forecasts of exporters, has been lowered from 3,800,000 bbls. in November to 3,300,000 bbls. in December. This is in line with the usual seasonal drop, caused not only by a decline in demand but also by the closing for the winter of many waterways during December.

Stocks.—Stocks of finished and unfinished gasoline on September 30 totaled 69,086,000 bbls. According to American Petroleum Institute statistics, these stocks declined about 735,000 bbls. during October, bringing them to approximately 68,300,000 bbls. as of October 31. The bureau estimates an increase of 3,400,000 bbls. during December, 1938, compared with an increase of 6,164,000 bbls. during December, 1937. Further correction of the present excessive gasoline inventory depends upon reducing runs to a minimum necessary to meet the required distillate production. While current stocks of distillate are considerably higher than last year, they are relatively not much greater than the probable increase in demand. The December estimate of 3,089,700 bbls. daily average runs assumes a maximum yield distillate and a substantially greater withdrawal of distillate stocks than occurred in December, 1937.

Gasoline production.—Benzol and direct sales and losses of natural gasoline have been estimated as 830,000 bbls., making refinery production 45,970,000 bbls. This is distributed among the various districts as follows (thousands of barrels): East Coast, 6,040; Appalachian, 1,610; Indiana-Illinois, 8,060; Oklahoma, 3,060; Kansas-Missouri, 2,540; Texas Inland, 3,210; Texas Gulf Coast, 11,750; Louisiana Gulf Coast, 1,480; North Louisiana-Arkansas, 890; Rocky Mountain, 1,190; California, 6,140.

Runs to stills.—Natural gasoline consumption at refineries in December is estimated as 8.3 per cent of the total production. The yield of straightrun and cracked gasoline is estimated as 44 per cent. The application of this yield to the straightrun and cracked production of 42,150,000 bbls. gives crude runs of 95,780,000 bbls., or 3,089,700 bbls. daily. Foreign crude runs are estimated as 2,100,000 bbls.

Exports, fuel and losses.—The estimate for exports, which was 6,500,000 bbls. for November, has been lowered in December, in accordance with forecasts received from the largest exporters, to 5,500,000 bbls. The estimate for crude used for fuel and losses has been increased from 2,600,000 bbls. in November to 3,300,000 bbls. in December, in anticipation of the usual seasonal change.

Total demand.—The total demand for domestic crude in December, 1938, as indicated by the estimates above, is 102,480,000 bbls., or 3,305,800 bbls. daily.

Crude-oil demand by states.—The breakdown of the total estimated daily demand for domestic crude oil of 3,305,800 bbls. gives the following crude requirements by states of origin. As these requirements may be supplied either from stocks or from new production, contemplated withdrawals from crude-oil stocks must be deducted from the bureau's estimate of demand to determine the amount of new crude to be produced.

TABLE 1—ESTIMATED DAILY AVERAGE CRUDE-OIL DEMAND BY STATES (BARRELS)

(As no changes in crude-oil stocks are involved in these estimates, they represent demand rather than production)

State—	Forecast— December, 1938	Forecast— November, 1938	Actual demand December, 1937
Texas	1,343,900	1,371,000	1,367,000
California	589,700	616,700	698,000
Oklahoma	500,700	515,000	563,000
Louisiana	248,000	256,300	250,000
Kansas	159,000	164,300	188,000
New Mexico	100,300	111,000	105,000
Wyoming	76,100	74,700	43,000
Illinois	71,900	64,300	33,000
Arkansas	51,600	52,300	42,000
Michigan	51,000	50,300	44,000
Pennsylvania	43,700	44,700	51,000
Kentucky	18,400	17,700	12,000
New York	12,800	13,700	15,000
Montana	12,600	13,300	12,000
West Virginia	10,000	10,300	10,000
Ohio	9,300	9,000	10,000
Colorado	3,900	4,000	4,000
Indiana	2,900	2,700	2,000
Total	3,305,800	3,391,300	3,449,000

Southwest Texas Fields

(Continued from Page 68)

4,013-16½ feet, 150 bbls., quarter-inch choke, jetting. West Saxet field: Renwar Oil Corp. No. 2-A Kenedy, perforated casing 4,068-75 feet, 146 bbls., three-sixteenths inch choke.

Refugio County

La Rosa field: Geophysical Service, Inc., No. 2 Spaulding, perforated casing 5,903-06½ feet, 340 bbls., quarter-inch choke. Tomoconnor field: Copano Oil Co. No. 23-B O'Connor, sand 5,908-16 feet, 622 bbls., quarter-inch choke; No. 34-B O'Connor, perforated casing 5,841-55 feet, 616 bbls., quarter-inch choke; No. 37-B O'Connor, sand 5,824-49 feet, 600 bbls., quarter-inch choke. Quintana Petroleum Co. No. 28 Heard, perforated casing 5,866-74 feet, 1,474 bbls., three-eighths inch choke.

San Patricio County

Plymouth field: Plymouth Oil Co. No. 106-C Welder, perforated casing 5,881-85 feet, 102 bbls., 7/64-inch choke. Texon Royalty Co. No. 2 Rambo, sand 5,642-43½ feet, 228 bbls., three-sixteenths inch choke.

Starr County

Barbacoas field: Lee Davis No. 2 Garza, 2,926 feet, abandoned. Margo field: H. E. Hall No. 1 Guerra, 390 feet, abandoned.

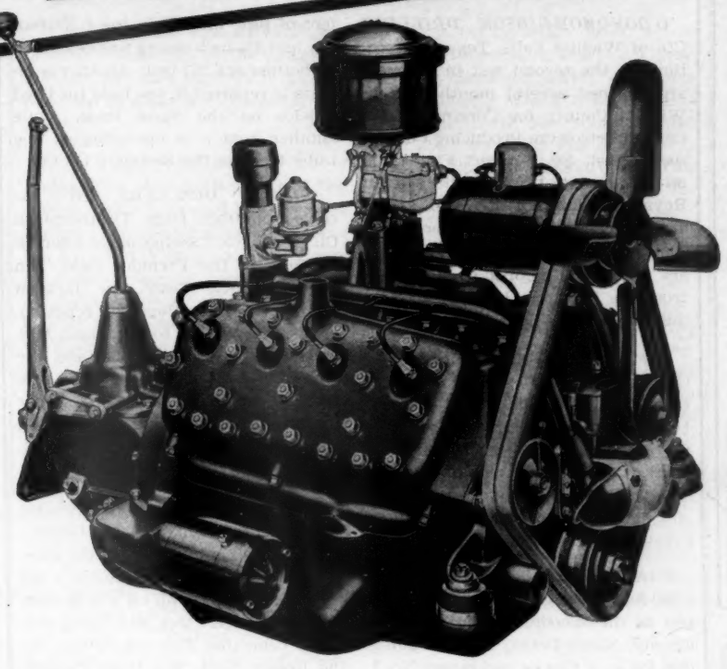
Victoria County

East Placedo field: Stanolind Oil & Gas Co. No. 5 Henderson & Pickering, 7,020 feet, abandoned.

Zapata County

Comitas field: Gilcrease Oil Co. No. 39-B Haynes, sand 1,104-18 feet, 42 bbls., pumping.

LIFE BEGINS AGAIN



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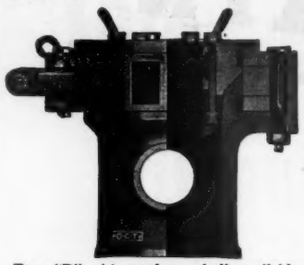

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Among the Drilling

O'DONOHOE-GIBSON DRILLING CO. of Wichita Falls, Tex., has location for the second test in the new area opened several months ago in Wichita County for Continental Oil Co. and Petroleum Producing Co. The second test, No. 1 Albert Finkler, is on a 162-acre tract in the Green Reynolds Survey, Abstract 51, and is a south offset to the discovery well. The new area opened by the discovery well which pumped 60 bbls. daily from the 5,300-foot level, is about 3 miles south of Wichita Falls.

J. F. WEST, drilling contractor of Graham, Tex., has spudded a wildcat to be known as the Neely, West & Honea No. 1 W. H. Green. Test is in Section 66-12, T.&P. Survey, of south central Shackelford County, Texas, and is about 18 miles southwest of Albany. The well will test the Bluff Creek horizon at around 1,000 feet.

TARGET DRILLING CO. holds a 5,500-foot drilling contract for a deep test in the Woodbine area of Cooke County, North Texas. Pits are being dug for Jack Caudle and others No. 1 E. E. Walker, 4½ miles southeast of the town of Woodbine and in the Gilman Survey.

BAILEY GAUNCE, contractor of Ardmore, Okla., has moved in a large spudder preparatory to drilling a shallow wildcat of much interest in Parker County, West Central Texas. Test is the E. L. Ford and associates No. 1 well, in the western part of the G. W. Duncan Survey, Abstract 375. It is attracting considerable interest because of the seismograph work which Stanolind Oil & Gas Co. did on the same block of 5,400 acres earlier in the year.

BOURLAND & GANNON DRILLING CO. of Gainesville, Tex., have moved in materials preparatory to spudding a new wildcat test for northeastern Collin County, North Texas. It is Pace Petroleum Corp. No. 1 C. C. Hooper, center of Block 10, James Rutherford Survey. Contracted to the Paluxy, it will seek sand around 2,600 feet which carried oil and some gas in a nearby test about two years ago. Location is about 1½ miles east of Blue Ridge and three-quarters of a mile west of the old E. A. Parkford-California Consolidated No. 1 C. M. Fagg.

ALLEN & MORRIS have reached the sand on two more tests in the La Rosa field, Texas. Geophysical Service, Inc. No. 4 Rooke is bottomed at 5,910 feet, and a drill stem test was being made at 5,900-10 feet, while the same company's No. 1 Michna recovered several hundred feet of pipe line oil in the 6,300-foot pay and 5½-inch casing was cemented on bottom at 6,357 feet. Another operation is reported in the field for Fred Shields on the Sasse lease, while another rotary is operating at the Luby field for the Seaboard Oil Co.

TRINITY DRILLERS, INC., received contract from Transwestern Oil Co. for No. 1 Seeligson, an interesting test in the Premont field, Jim Wells County, Texas. In Jackson County two operations are reported, one being a wildcat for Chapman Minerals on the Bennett lease and the other at the Cordelle field for the Lewis Production Co. Three other rotaries are operating for O. W. Killam, L. A. Douglas and Robert H. Feltner.

CROSBY DRILLING CO. extended the Francitas field, Jackson County, Texas, a half mile north as the company's No. 1 Broughton tested 1,500 feet of 42.7-gravity oil on a drill stem test at 7,391-7,414 feet, and casing was being cemented for completion. In the Kelsey field, Jim Hogg County, No. 1 Garza is being started for Navarro Oil Co. about a mile from production.

GRAY & WOLFE have moved a rotary to the Almeda area, Brazoria County, Texas, where a joint test with Mayo and others will be started on the Joe D. Hughes lease in the F. B. Drake lease.

DAVID B. MacDANIEL has moved a rig, 1½ miles southwest of the Hastings field, Brazoria County, Texas, where No. 1 J. E. Rawold in the Mary V. O'Donnell Survey will drill to the Frio section below 6,200 feet.

JACK FRAZIER has cemented 5½-inch casing at 4,089 feet in his joint test with Bunte Oil & Gas Co. on the Mount Houston prospect, Harris County, Texas. The well is on the Griffith lease and was drilled to a total depth of 8,348 feet. Favorable showings were indicated on an electrical coring test. In the Highlands area, No. 1 Hornberger has been abandoned and the rig is being moved in for No. 1 W. T. Carter, 2 miles to the northwest in the Talcott Patching Survey, Harris County.

SMITH & McDANNALD received contract from Tide Water Associated Oil Co. for another interesting outpost to be drilled on the M. A. Roy lease, about a half mile southwest of the Eureka field, Harris County, Texas. The well is about 1,500 feet northwest of the same company's No.

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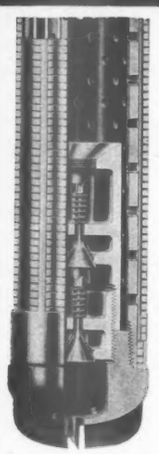

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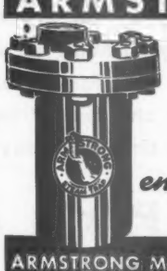

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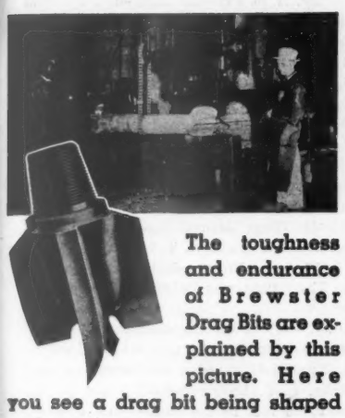

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1 H. H. Ford, a dry hole, which logged favorable showings in the discovery horizon, but was apparently too far downdip to make a commercial producer.

CARL KING DRILLING CO. of Dallas, Tex., has been awarded the contract for a 6,300-foot wildcat to be drilled as Wadley-Erwin and others No. 1 G. W. Taylor, a Lafayette County, South Arkansas, test on a block of about 10,000 acres. The block is located in the northeast end of the Rodessa fault system.

LONG & WOLFE of Tyler, Tex., have completed a producer in the Magnolia pool of Columbia County, Arkansas, for Atlantic Refining Co. The well, No. 1 L. Garrett, gauged 27 bbls. daily through a quarter-inch choke. It is producing from the Smackover lime, which has shown the steepest dip yet encountered in the Magnolia field. The contractors are moving the rig to Atlantic Refining Co. No. 1 F. Barnett, a west offset to a good producer. In the same field, Long & Wolfe are moving a rig on to drill Normandie Oil Corp. No. 1 L. Garrett, a south offset to production. The contractors' third active rig in the tri-state area is drilling below 1,250 feet in Eagle Production Co. No. 1 Means, in the Ida area of Rodessa, Caddo Parish, Louisiana.

GRACE & WOOD, Wichita Falls, Tex., are rigging up to drill a wildcat test to a depth of 5,000 feet with rotary tools in NW Section 455, Block A, H.&T.C. Survey, Foard County, Texas. The location is 3 miles southeast of Foard City and 15 miles southwest of the Thalia pool. The objective is the Strawn series at 5,000 feet; the Canyon series at 4,000 feet is to be tested. The well is to be drilled for C. A. Fleetwood and H. C. Kaufman, Tulsa operators.

KIRK-GREENE-WAY, INC., Tulsa, drilled No. 2 Gray, NW SE SW Section 18-18-2e, in the Ramsey pool, Payne County, Oklahoma, for Mid-Continent Petroleum Corp. and others which established a potential of 7,032 bbls. for 24 hours. Production came from Wilcox sand which was topped at 4,768 feet. Total depth of the well is 4,893 feet. The well flowed 370 bbls. of oil the first hour, accompanied by a flow of gas estimated to be 4,300,000 feet daily. Succeeding hourly gauges for the next four hours were 285 bbls., 265 bbls., 267 bbls., and 270 bbls. The well is now shut in.

HELMERICH & PAYNE, INC., Tulsa, is coring below 3,537 feet in the first Wilcox sand at No. 2 Wilbur, NW NW Section 21-28-1w, Kay County, Oklahoma, which is expected to make the fourth new South Braman pool producer. This well is drilled in partnership with the Ohio Oil Co. This drilling organization is waiting for tools to drill in at No. 1 Strain, Logan County, Oklahoma, where the well has been drilled to a total depth of 5,222 feet, with pipe set at 5,169 feet.

FALCON-SEABOARD DRILLING CO. is drilling on No. 11 McFadden, the second well of a 10-well contract with Barnsdall Oil Co. in Victoria County, Texas, and also has another contract to drill a well for Barnsdall on the Traylor ranch near the Heyser pool. Falcon-Seaboard is plugging back on William G. Helis No. 4 Valentine in the Valentine field in southern Louisiana. Heaving shale was encountered and directional drilling is now being done. This company just completed No. 1 Goodykoontz in the Fairbanks (Texas) field for Sinclair.

OVEN DRILLING CO., Enid, Okla., is drilling for Champlin Refining Co. below 5,290 feet at No. 1 Nackey in SE Section 4-24-8w, east of Hillsdale in Garfield County, Oklahoma. For the same operator this drilling organization is drilling No. 2 Boehm in the northwest of the same section, below 2,730 feet.

LOUAL DRILLING CO., Ada, Okla., is drilling a well for Deep Rock Oil Co. at No. 1 Bates, in SW NW Section 36-7-5e, in the Allen pool of Pontotoc County, which has topped the sand at 2,348 feet and cored to 2,355 feet where saturated formation was recovered. Seven-inch casing was being set on top of the sand.

UNGREN & FRAZIER, of Abilene, Tex., opened their second new West Central Texas oil pool in as many weeks when their No. 2 W. Lon Steffens, quarter-mile south extension to the Steffens pool of eastern Jones County, filled with oil from a new and deeper horizon in the area. The outpost found saturated sand and lime breaks from 1,894-98 feet, approximately 45 feet below the pool's producing horizon. The well flowed by heads and is estimated for about 200 to 300 bbls. per day. Location is in the SW SE Section 32, Block 15, T.&P. Survey.

STOFFER DRILLING CO. has a rig up for drilling No. 1 Sublett in SW NW Section 21-20-7e, in the Hallett-Jennings area of Pawnee County, Oklahoma.

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Eastern Field Report

By STAFF CORRESPONDENT

Extend Poca-Elk Gas Field With 7,655,000-Foot Well

PITTSBURGH, Pa., Nov. 28.—The deep test of Everett Starcher and others on the Story Boggess farm in Ripley district, Jackson County, West Virginia, was completed and is a larger gas well than expected. The Oriskany was topped at 5,016 feet and after 42 feet of sand was completed at 5,060 feet. After shot, the test gauged 8,400,000 feet a day and it was shut in for 36 hours and then blown. After 45 minutes, the gauge was at the rate of 7,655,000 feet a day.

As this test is over 2 miles north of the present Oriskany gas well on the Cunningham farm it opns up a considerable extension to the Poca-Elk field in Kanawha County which is the largest producing gas field in the eastern fields.

In Southwest Pennsylvania, the test of the L. J. Convex Glass Co. on the Paul Dunham farm on Chestnut Ridge 1.1 miles north of the West Virginia state line in Springhill Township, Fayette County, struck the first gas pay in the Onondaga lime. With the top of that formation at 7,519 feet, and the top of the chert at 7,536 feet, drilling continued until 7,609 feet, steel line measurement, when a fresh bit stuck. After jarring five hours, the tools came loose and on reaching the surface, gas followed. The master gate was closed and the well shut in. It rocked up to 2,720 pounds in six days when it was blown off and the gauge was 158,000 feet a day.

Gas at this depth presents interesting possibilities on Chestnut Ridge as in this test, starting at an elevation of 2,202 feet, it places the first gas at 5,409 feet subsea or over 1,100 feet lower on this anticline than the discovery well, Summit Hotel (Heyn) No. 1, and also without the presence of any salt water to date. Drilling has been resumed and any appreciable increase in the volume will enhance the possibilities of the entire structure to the producing well 9 miles northeast.

The Peoples Natural Gas Co.'s test on the Piedmont Coal Co. tract on Chestnut Ridge in South Union Township, Fayette County, is drilling at 6,626 feet and is showing some gas. The top of the Onondaga was 6,515 feet and the chert 6,540 feet which places the bottom of the hole 86 feet in the chert. As it is being drilled with a rotary, no gauge of the test is possible as no drill stem test has been made, but gas is coming up with the mud being circulated. To date one core of the Onondaga has been taken which was unfortunate not to have passed a gas pay. More will be taken.

SOUTHWEST PENNSYLVANIA

In Fayette County, Pennsylvania, Nollem Oil & Gas Co. completed a gas well on the Victor Piccolamini farm in Menallen Township. The top of the Big Injun sand was 840 feet; first gas 926 feet; total depth 1,020 feet. The well gauged 1,118,000 feet a day. There were nine gas pays in the sand. This company has a rig up on the Jesse Frost farm in the same township about 2,500 feet north by east of a large gas well on the Rick farm.

In Greene County, Monongahela Oil & Gas Co. completed the second test on the Vance heirs farm in Monongahela Township as a gas well at 1,634 feet. The Big Injun sand was topped at 1,525 feet with the gas at 1,633 feet gauging 153,000 feet a day.

In Washington County, J. J. Foley & Co. completed a test on the Ira Baldwin farm in South Franklin Township as a gas well gauging 175,000 feet a day and rock pressure of 80 pounds. The Gas sand was at 1,140 feet with the pay at 1,177-1,200 feet and the Pittsburgh Coal logged at 429-437 feet. In Hanover Township, K. Aten drilled a test on the A. Vance farm through the Salt sand and it was dry and is being abandoned.

In Chartiers Township, the Cannonsburg Iron & Steel Co. is drilling at 1,425 feet in a second test on their own property. In Hopewell Township, McFadden & Co. have rigged up the test on the J. W. Reed farm.

In North Strabane Township, Washington County, the Keystone Drilling Co. has reached 275 feet in a test on the Frank Grego farm. In Amwell Township, the Equitable Gas Co. has a rig standing for a test on the Porter E. Herrod farm.

Greene County

In Aleppo Township, the Manufacturers Light & Heat Co. has started deepening the C. J. Behm No. 1 and have reached 2,685 feet. In Monongahela Township, O. I. Dille is drilling at 1,600 feet in a test on the Elmer D. Beckham farm. Here, Brummage & Brummage are building a rig for a test on the S. G. Durr farm.

In Washington Township, Greene County, the Equitable Gas Co. is down 1,563 feet in the T J. Huffman No. 3 and at 2,580 feet deepening the T. J. Ross No. 1. In Greene Township, this company is drilling at 1,112 feet in the test on the George W. Hixenbaugh farm.

In Center Township, the Carnegie Natural Gas Co. has reached 962 feet in the J. H. Orndoff No. 4. J. B. Orndoff is still fishing in the G. M. Scott No. 2 and has the No. 3 Mattie I. Scott rigged up. In Morris Township, R. E. Hoskinson is shut down at 2,620 feet in the test on the Ealy-Conklin farm.

Deep Tests

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E. Snee and others are drilling at 5,400 feet in the test on the Indian Creek Coal Co., William Johnson warrant. In North Union Township, Wasson & Co. are drilling at 6,683 feet and have about 200 feet to go to reach the Onondaga.

In Mercer County, Carnegie Natural Gas Co. has run casing in the deep test on the A. S. McCullough farm in Jefferson Township to the bottom of the Oriskany sand from which salt water intruded and will deepen the test. The bottom of the Oriskany was 3,801 feet.

In Beaver County, Hanley & Bird are running casing in the test on the Calvin heirs farm in South Beaver Township. This is located about one-half mile south of the Oriskany gas well on the Eliza Allen farm.

SOUTHEAST OHIO

In Athens County, C. H. Bowman completed 110,000-foot gas well on the James Rogaski farm in Section 11, Lodi Township, in the second Berea pay at 1,754 feet. In Section 5, same township, the Williams Brothers drilled a dry hole on the James B. Crawford farm through the Berea to 1,700 feet.

In Section 34, Carthage Township, Athens County, Nuzum and others completed a second test on the John A. Kinner farm in the Salt sand at a depth of 1,064 feet and it is a gas well gauging 250,000 feet a day.

In Licking County, Eugene Ridgeway completed a second test on the Eliza Richards farm in Section 13, Mary Ann Township, in the Berea sand at 795 feet and after shot it is showing for a 2-bbl. pumper.

In Medina County, William Dempsey completed No. 3 E. McCrea (mapped Herman L. Holiday) in Section 8, Litchfield Township, in the Clinton sand at 2,580 feet. It gauges 1,000,000 feet a day. In Lot 25, Lafayette Township, T. R. Phillips drilled a test on the Warren White farm through the Berea grit to 617 feet and it was a dry hole.

In Perry County, Bag Run Oil & Gas Co. completed No. 4 C. L. Weaver Heirs in Section 2, Monroe Township, in the Berea sand at 1,171 feet. It is a gas well gauging 700,000 feet a day.

WEST VIRGINIA

No new production was reported from West Virginia during the week. Production is being held back due to curtailment in crude purchases now in effect. Nine gas wells were completed.

In Cabell County, D & B Drilling Co. completed a test on the Harry Hatfield farm in McComas district at 2,270 feet as a gas well. Berea at 2,240-2,250 feet yielded 149,000 feet per day, after a shot.

In Gilmer County, H. E. Ermlich completed a second test on the A. E. Goff heirs farm in DeKalb district at at 1,636 feet as a gas well gauging 96,000 feet a day before a shot. Big Injun lay at 1,545-1,625 feet, with the gas at 1,590-1,615 feet. In Glenville district, W. E. McKnight completed a test on the Russell Reed farm at 1,115 feet, the Salt sand, and it is good for 126,000 feet a day.

In Jackson County, the C. F. Goebels Oil Co. drilled a dry hole on the Boyd E. Warne farm in Ripley district through the Salt sand to 1,700 feet.

In Logan County, Hope Natural Gas Co. completed No. 7823 on the Lawson heirs farm in Logan district as a gas well at 3,813 feet. Brown shale was found at 3,145-3,813 feet. The gauge was 281,000 feet a day 72 hours after shot.

In Wirt County, Richter Oil Co. deepened No. 6 M. Richter in Burning Springs district to 2,161 feet, Squaw sand, and it is a gas well gauging 62,000 feet a day. In Newark district, L. C. Exline drilled a test on his own property to 3,400 feet in the shales and it was a dry hole.

In Wood County, the Carnegie Natural Gas Co. deepened a well on the A. R. Brake farm in Union district to 2,251 feet, Squaw sand, and it is a gas well gauging 92,000 feet a day.

Oriskany Gas Field

One gas well was completed in the Oriskany gas field during the week. In Poca district, Kanawha County, the United Carbon Co. completed the test on the J. H. Prillerman farm at 5,175 feet with the Oriskany topped at 5,155 feet and a gauge without shot of 13,269,000 feet a day.

In Elk district, the Columbian Carbon Co. made a location on the M. N. Landers farm, elevation 846 feet. Here, this company topped the Corniferous at 4,954 feet in the second well on the Ida Hughart farm. The United Carbon Co. is drilling at 4,750 feet on the Van Canterbury farm.

In Poca district, United Fuel Gas Co. topped Corniferous at 4,856 feet on the J. H. Bumgardner farm and is drilling at 1,975 feet in No. 4794 B. B. Milam; at 1,712 feet in No. 4795 Nancy Carney and others; at 3,022 feet in No. 4796 W. J. Glass; at 1,575 feet in No. 4807 C. O. Slater and others; at 4,208 feet in No. 4811 S. E. Gibson; at 2,255 feet in No. 4816 M. L. Miller and others; at 150 feet in No. 4818 W. H. Fisher and others; at 100 feet in No. 4815 Mamie A. Ray; building rig for No. 4812 J. A. Wines and others and No. 4825 G. C. Patterson and others; and rigging up No. 4768 John Wines.

Here, Mullins Gas Co. is down 2,680 feet on the Mullins & Odell farm and 550 feet in the William E. Fisher test. Godfrey L. Cabot, Inc., is drilling at 286 feet on the Putnam Co. test and building road to the Helen M. Hoge location. Spartan Gas Co. has reached 1,270 feet in the Ernest Fisher and others test; Glenn Oil & Gas Co. at 4,170 feet in the Mary Beaver test; United Carbon Co. at 1,740 feet in the J. H. Burdette test and 3,640 feet in William Moss and others test. Meigs Development Co. at 4,700 feet in the E. P. Higginbotham test, and West Virginia Gas Corp. at 1,389 feet in the J. H. Burdette and others test.

Outside Deep Tests

In Jackson County, Godfrey L. Cabot, Inc., has reached 1,645 feet on the Walker & Jones lease in

(Continued on Page 82)

Kansas Developments

By
DAL DALRYMPLE

Fields in Ellsworth, Barton, Rooks and Russell Extended

Extensions of several pools and the completion of a pool opener provided interest in Kansas oil fields the past week. Only 24 completions were recorded during the seven-day period, including 17 oil wells, two gas wells and five failures.

Extension of the Coralena pool in southern Russell County was indicated at Yankey & Stearns No. 1 Krug, NW SE NW Section 7-15-13w, about three-fourths mile northwest of production. Oil rose 2,600 feet in the hole after Arbuckle lime was topped at 3,310 feet and drilled to 3,327 feet, total depth. Casing was being run.

Western Kansas Oil & Refining Corp. No. 1 Fraternal Aid, NW NE SW Section 18-17-1w, wildcat pool opener 9 miles northeast of the Anderson-Nordling pool in McPherson County, made initial potential of 419 bbls. of oil daily after acidizing chat formation at total depth of 2,986 feet. Location is on a block of 2,000 acres owned by the operating company.

C. E. Ash No. 1 Wilkens, SE SE NW Section 13-17-10w, one-half mile northwest extension of the Wilkins pool, Ellsworth County, made initial potential of 381 bbls. of oil naturally from Arbuckle lime at 3,254 feet, total depth 3,282 feet.

Phillips Petroleum Co. No. 1 Tanzey, C NW SW Section 25-8-18w, wildcat 1 mile northwest of the Dopita pool in Rooks County, gave promise of extending production in that district. It found Arbuckle lime at 3,418 feet, total depth 3,423 feet, had a small amount of oil showing in the hole and operators were preparing to acidize and test. Four producing wells with total potential of 1,534 bbls. are in the nearby Dopita pool.

The South Trapp pool of Barton County apparently has been given an extension of the Lansing lime area at Shell Petroleum Corp. No. 4-A Ehrlich, SE SE NW Section 18-16-13w. It missed Arbuckle lime, had granite at 3,325-47 feet, total depth, and plugged back to 3,160 feet in Lansing lime, topped at 3,097 feet. Casing was perforated at 3,105-20 feet in that formation and operators swabbed at the rate of 28 bbls. of oil an hour, naturally. It was acidized and was due for further tests.

Wildcat Activity

Panhandle Eastern Pipe Line Co. No. 1 Parsons, C N half SW Section 25-30-37w, wildcat in the Hugoton gas area, Grant County, was completed for initial production of 11,000,000 feet of gas at 2,710 feet, total depth.

Western Kansas Oil & Refining Co. No. 1 Michel, C E half E half SW Section 1-15-14w, Russell County wildcat, found anhydrite at 820 feet, Topeka lime at 2,739 feet, Lansing lime 3,038 feet, Arbuckle lime 3,311 feet and was dry and abandoned at 3,356 feet, total depth.

Oriental Oil Co. No. 1 Beardslee, NE cor. Section 21-18-25w, southeast of the Aldrich pool in Ness County, was a wildcat location.

J. H. Tatlock No. 1 R. P. Proffitt, SW SW NE Section 23-20-10w, wildcat in Rice County, was drilling below 1,773 feet.

J. H. Tatlock No. 1 L. C. Proffitt, SW SE SW Section 12-20-10w, Rice County wildcat, was waiting on cement at 149 feet.

Continental Oil Co. No. 1 Putnam Investment, CSL SW NW SW Section 3-19-21w, wildcat north of the Morel pool in Graham County, was a cellar.

Earl Wakefield No. 1 Meharg, SE cor. Section 16-15-13w, was location for a wildcat in Russell County.

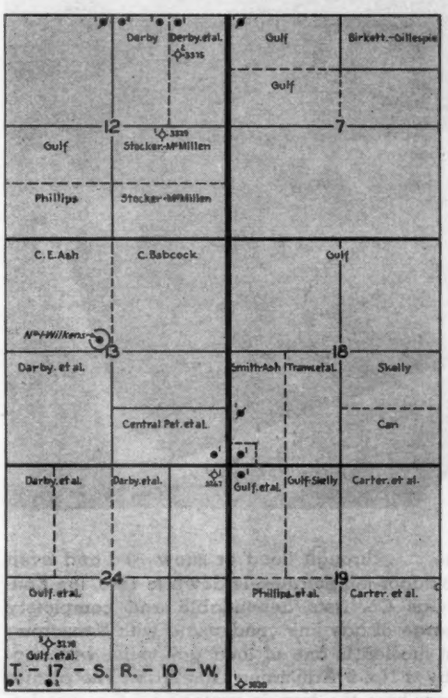
Stafford County

The largest of three producers completed in the Zenith field, Stafford County, the past week was Stanolind Oil & Gas Co. and others No. 7 Volker, C S half N half NE Section 23-24-11w. It had Misener sand at 3,798-3,806 feet, total depth 3,807 feet, plugged back 1 foot, shot and flowed 196 bbls. of oil initially, making potential of 1,909 bbls.

E. H. Moore, Inc., No. 7 Johnson, SW SE SW Section 13-24-11w, flowed 265 bbls. of 42-gravity oil in three hours and was rated potentially at 1,662 bbls. Production was from Misener sand at 3,796-3,820 feet, total depth.

Sinclair Prairie Oil Co. No. 5 Krey, NE NW NE Section 14-24-11w, found Misener sand at 3,761-74 feet, was bottomed at 3,776 feet, acidized and flowed 347 bbls. of 42-gravity oil in eight hours, making potential of 1,017 bbls.

Atlantic Refining Co. No. 8 Gates, SW SE SE Section 27-21-13w, Gates pool, acidized Arbuckle lime



Midcontinent Map Co., Wichita

C. E. Ash extended the Wilkins pool, Ellsworth County, Kansas, a half mile to northwest at No. 1 Wilkens, Section 13-17-10w

found at 3,652-59 feet, total depth, pumped 475 bbls. of oil in eight hours and made potential of 1,424 bbls. Gravity of the oil was 38 degrees.

Indian Territory Illuminating Oil Co. No. 1 Mellies, SW SW NW Section 36-21-12w, East Sittner area, topped Arbuckle lime at 3,592 feet and was dry and abandoned at 3,694 feet, total depth.

Skelly Oil Co. and others No. 1 Kipp D, NE NE SE Section 27-25-14w, Kipp area, had Lansing lime at 3,704 feet, total depth 3,942 feet, plugged back and shot but was dry and abandoned.

E. H. Moore No. 8 Johnson, NE NW SE Section 13-24-11w, was a location. Continental Oil Co. No. 1 McCune, SW SW NE Section 12-25-13w, was a location.

Russell County

Texon Oil Co. No. 9 Letsch, SW SE SW Section 26-14-13w, Letsch pool, Russell County, had Kansas City lime at 2,814-75 feet, total depth, treated it with acid and pumped 830 bbls. of oil in eight hours, gaining potential rating of 2,491 bbls. of oil.

Darby Petroleum Corp. No. 10 Michaelis, NW SW SE Section 36-15-14w, Trapp field, pumped 775 bbls. of oil in eight hours, making potential of 2,326 bbls., after acidizing Arbuckle lime at 3,312-20 feet, total depth.

Shell Petroleum Corp. No. 3 Dumler, SW SE SW Section 36-15-14w, found Arbuckle lime at 3,311-33 feet, total depth, was acidized, pumped 104 bbls. of oil and much water in eight hours and was rated potentially at 313 bbls. of oil.

Cities Service Oil Co. No. 1 Kramer, NE NE NW Section 14-15-14w, had Arbuckle lime at 3,314-19 feet, total depth ,acidized with 1,000 gallons and swabbed 30 bbls. of oil in six hours; reacidized with 600 gallons, the hole filled with water and it was abandoned.

Westgate-Greenland Oil Co. No. 1 Krug, NE NE NW Section 18-15-13w, was building rotary rig.

Barton County

Shell Petroleum Corp. No. 4 Ehrlich, CEL E half SW Section 1-16-14w, Trapp field, pumped 844 bbls. of oil in eight hours after treating with acid and made potential of 2,531 bbls. Production was from Arbuckle lime at 3,331-52 feet, total depth.

Shell Petroleum Corp. No. 4 Hoffman B, NE NW NE Section 12-16-14w, was drilling below 665 feet.

Ellis County

A pair of producers was completed in the Bemis field, Ellis County. Gulf Oil Corp. No. 1 Mai, SW SW SE Section 14-11-17w, had Arbuckle lime at 3,363-65 feet, total depth, pumped 933 bbls. of oil in eight hours and made potential of 2,800 bbls.

Cities Service Oil Co. No. 4 Hall A, SE SE SW Section 14-11-17w, pumped 229 bbls. of oil in eight hours from Arbuckle lime found at 3,364-70 feet, total depth, and made potential of 688 bbls.

Rice County

Continental Oil Co. and others No. 7 Wood, NW SW SE Section 12-18-8w, Geneseo field, Rice County, was rated potentially at 2,543 bbls. of oil daily after flowing 848 bbls. in eight hours. It found Arbuckle lime at 3,175-3,227 feet.

Transwestern Oil Co. and others No. 1 Roesler B, SW NW NW Section 6-18-10w, Rice County sector of the Bloomer field, had Arbuckle lime at 3,239-48 feet, total depth, pumped 599 bbls. of 43-gravity oil in eight hours and made potential of 1,798 bbls.

Sam Schneider No. 1 Johnson, NE NE SE Section 31-20-7w, Wherry field, topped conglomerate at 3,325 feet, had pay at 3,327-28 feet, was bottomed at 3,342 feet, pumped 113 bbls. of oil in eight hours and made potential of 340 bbls.

New work in Rice County: Continental Oil Co. No. 1 Sieman, NW cor. Section 18-18-7w, building rig; same company's No. 8 Wood, SE cor. Section 12-18-8w, location; Drillers Gas Co. No. 1 Brubaker, C SW NE Section 2-20-8w, rigging up rotary.

McPherson County

Pryor & Lockhart No. 2 Bixby, NW NE SW Section 24-19-3w, McPherson pool, McPherson County, topped Mississippi lime at 2,991 feet, was bottomed at 3,006 feet, treated with acid and pumped 30 bbls. of oil and 225 bbls. of water in 24 hours.

Reno County

Salt City Gas Co. No. 2 Bontrager, C SW NE Section 33-24-5w, Yoder area, Reno County, topped Mis-

sissippi lime at 3,408 feet, total depth 3,472 feet, pumped 12 bbls. of oil and 60 bbls. of water in 24 hours, but was dry and abandoned.

Butler County

Isadore Molk No. 1 Yingling, NW SW SE Section 29-26-6, Butler County, had Mississsippi lime at 2,769-83 feet, total depth, and pumped 50 bbls. of oil and 2 per cent water in 24 hours.

Harry Gore No. 1 Cannon, SW NE NE Section 28-26-7, topped pay at 2,739 feet, total depth 2,773 feet, and pumped 15 bbls. of oil and 35 bbls. of water in 24 hours.

Cowley County

G. M. Smith and others No. 2 Wilson, NE NW NW Section 9-33-6, Cowley County, had pay at 3,519-23 feet, total depth, and pumped 148 bbls. of oil in eight hours.

Arthur Brewer No. 2 Lewis, NE SW NE Section 28-31-4, was rigging up. Same operator's No. 3 City of Winfield, NW NE SW Section 15-30-4, was drilling below 2,550 feet. W. M. McKnab No. 2 Byers, NE SE NW Section 21-32-5, and No. 3 Byers, NE NE NW Section 21-32-5, were locations.

Barber County

Barbara Oil & Gas Co. No. 4 McKee, C SW Section 21-33-13w, Medicine Lodge area, Barber County, had initial production of 2,000,000 feet of gas and was completed at 4,669 feet, total depth.

First Reports

Lauck Petroleum Co. No. 1 Goodacre, NW NW SE Section 32-28-2, Sedgwick County, was a rig.

Cities Service Oil Co. No. 1 Wessler, NE NE SE Section 19-17-9w, Ellsworth County, was waiting on cement at 215 feet.

A Nebraska Abandonment

H. C. Stevens and Ed Uhri No. 1 Harlow Estate, C SE NE Section 32-1n-13e, wildcat in Richardson County in the southeastern corner of Nebraska, was reported abandoned at 700 feet, total depth.

Estimated Daily Production

Estimated daily production for Kansas for the week ending November 26, and for the preceding week, was as follows:

	Barrels	
	Nov. 26	Nov. 19
Oxford City	1,075	1,100
Burrton	9,100	8,575
Ritz-Canton	4,225	4,250
Graber	3,825	3,500
Hollow-Nikkel	1,975	1,700
Lerado	925	900
Voshell	1,825	1,800
Wellington	2,125	2,175
Ellsworth County:		
Lorraine	2,200	1,910
Other pools	1,565	1,195
Rice-Barton counties:		
Bloomer	2,050	2,000
Chase	4,675	3,000
Geneseo	3,950	3,675
Raymond	925	750
Silica	10,225	10,150
South Silica	2,000	2,075
Keesling	800	725
Wherry	3,800	2,875
Miscellaneous Barton	6,075	6,600
Miscellaneous Rice	6,045	5,965
Russell County	20,100	22,250
Sedgwick County	3,975	3,730
Ellis County:		
Bemis	4,425	5,005
Miscellaneous	3,895	3,145
Kingman County	615	680
Stafford County	4,400	4,540
Greenwood County	9,350	9,300
Butler County	19,575	19,550
Other fields	20,280	20,405
Total Kansas	156,000	154,125

Oklahoma Fields

(Continued from Page 73)

Hall-Troup & Moore No. 1 Jones, NW SW SE Section 27-6-5, found pay at 2,723 feet, total depth 2,749 feet, and flowed 120 bbls. of oil in 24 hours.

J. D. Campbell No. 1 Jones, SW SW SE Section 27-6-5, was drilling. Hall-Troup & Moore No. 1 Deavers, NW NE SE Section 27-6-5, was a location.

Pontotoc County

Sinclair Prairie Oil Co. No. 5 McCarty, NW NE NE Section 22-2n-7, Fitts district, Pontotoc County, had pay at 1,325 feet, total depth 1,347 feet, and pumped 85 bbls. of oil in 24 hours.

Stanolind Oil & Gas Co. No. 6 Norris, SW SW SE Section 25-2n-6, an old Fitts well, was dry and abandoned after plugging back from 4,315 feet to 2,631 feet.

Blackstock Oil Co. No. 3 Craddock, NW NE SE Section 25-2-6, an old well, was recompleted at 4,258 feet, total depth, and pumped 59 bbls. of oil in 24 hours.

Texas Co. No. 5 Jefferson, SE NE NE Section 26-5-7, Allen district, topped pay at 2,645 feet, total depth 2,663 feet, and pumped 40 bbls. of oil in 24 hours.

Osage County

Barnsdall Oil Co. No. 5 Osage, NE SW SW Section 23-24-10, Osage County, swabbed 65 bbls. of oil in 24 hours from pay at 1,664 feet, total depth 1,729 feet.

Sinclair Prairie Oil Co. No. 9 Osage, 300 feet from the north line and 890 feet from the east line of NE Section 26-24-10, had pay at 1,750 feet, total depth 1,791 feet ,and pumped 30 bbls. of oil in 24 hours.

Tide Water Associated Oil Co. No. 5 Osage, NW SW SW Section 21-24-9, pumped 2 bbls. of oil and 18 bbls. of water daily from pay found at 2,202 feet, total depth 2,273 feet.

Gray & Tolson No. 12 Osage, SW NW SW Section 27-21-9, was dry and abandoned at 1,240 feet, total depth.

Oklahoma Natural Gas Corp. No. 1965 Osage, C S half SW SE Section 32-20-12, was dry and abandoned at 2,166 feet, total depth.

Ohio Osage Oil Co. No. 3 Osage, NW NE NE Section 27-21-9, was dry and abandoned at 2,254 feet, total depth.

D. D. Simon No. 1 Osage, C E half NW NE Section 36-28-10, was a location.

Grady County

T. H. McCasland and others No. 3 Clark, SW NW NW Section 8-3n-5w, Knox area, Grady County, was completed at 2,782 feet, total depth, pumping 50 bbls. of oil daily.

Cox & Hamon No. 1 Gibson, SW SE NW Section

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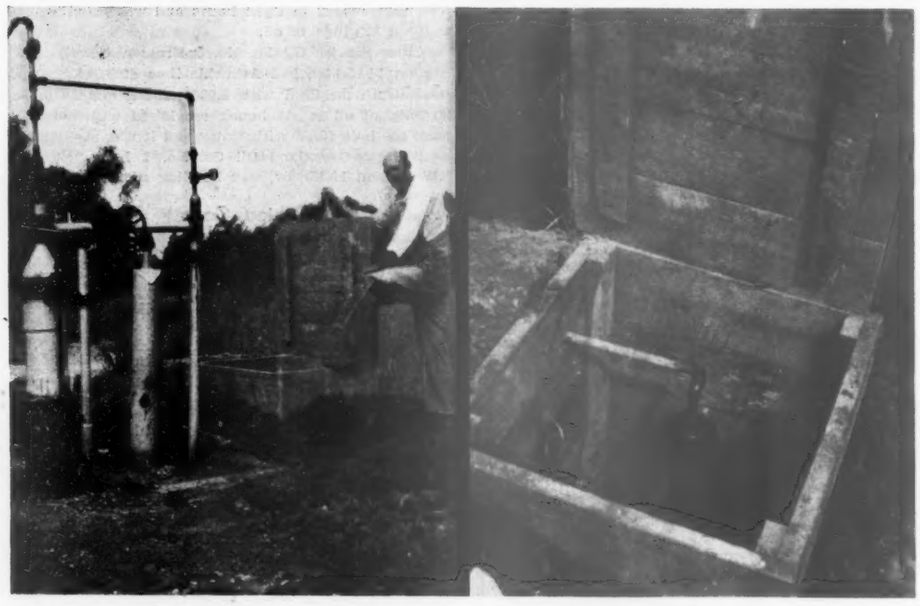

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16-3n-5w, was dry and abandoned at 1,891 feet, total depth.

Kay County

Helmerich & Payne, Inc., No. 1 Rudolfe, NE NE SW Section 27-29-1w, Kay County, was dry and abandoned at 3,653 feet, total depth.

Carter County

Shell Petroleum Corp. No. 55 McClure, SW NE SW Section 5-4s-3w, Healdton field, Carter County, found sand at 1,065 feet, was bottomed at 1,141 feet in shale, and pumped 37 bbls. of oil in 24 hours.

Sam Ripps No. 1 Pierce, NE NW NE Section 22-2s-2w, Ed Cox pool, was bottomed at 1,315 feet, plugged back to 1,240 feet, and pumped 8 bbls. of oil in 24 hours.

J. B. Harrell No. 1-A Dillingham, NW NW NE Section 22-2s-2w, was a location.

Stephens County

George L. Pace No. 22 Allen, SE SW NE Section 3-2s-8w, Empire field, Stephens County, topped sand at 2,189 feet, total depth 2,203 feet, and flowed 300 bbls. of oil in 24 hours.

J. G. Beard No. 6 Willis, SW SE SW Section 23-2s-6w, Woolsey pool, plugged back to 1,719 feet from 1,848 feet, total depth, and pumped 15 bbls. of oil in 24 hours.

Carl Kiester Co. No. 4 Jones, NW SW SE Section 23-1s-5w, was drilling below 412 feet. J. G. Beard No. 1-A Ferris, SW SE NW Section 26-2s-6w, was reaming at 1,545 feet.

New Operations

In Creek County: Ferguson Brothers No. 1 Turner SW NE SW Section 30-19-8, rigging up rotary; Guy Harris No. 1-A Green, NW SE NW Section 15-19-7, moving in material; Petroleum Drilling Co. No. 1 Endicott, NW SE NE Section 13-19-7, spudded; Indo Oil Co. No. 1 Stanley, SW SW SE Section 33-18-10, rigging up machine.

In Lincoln County: Shell Petroleum Corp. No. 1 School Land, SE SE NE Section 16-14-6, cellar and pits; Wilcox Oil & Gas Co. No. 18 Sac and Fox, NW NW SW Section 15-14-6, location.

In Payne County: Bock Co. No. 1 Amerada, C W half SW NW Section 12-17-1, location.

In Pawnee County: Peter Adamson, Jr., No. 2 Sharp, NE SW Section 34-21-8, spudded.

In Logan County: C. W. Bland No. 1 Miller, NE NE SE Section 4-17-4w, cellar and pits.

In Hughes County: Crescent Oil Co. No. 1 Neese, C NE NW Section 24-9-10, spudded; Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 2 Adams Estate, SW NE SW Section 31-9-9, building rig.

Southwestern Oklahoma: In Grady County, T. H. McCasland No. 1-A Horton, SE SE NW Section 8-3-5w, derrick. In Beckham County, Wagner-Stagner Co. No. 2 McGee, NW NE SE Section 25-8-22w, drilling below 200 feet. In Jackson County, O. P. Burnham No. 4 Sumner, NE NW SE Section 6-1s-19w, Tipton pool, drilling below 1,018 feet.

Gulf Coast Fields

(Continued from Page 67)

doned in the Wilcox at 11,220 feet. The section was topped at 10,935 feet.

COMPLETIONS ON TEXAS GULF COAST

(24-hour production)

Brazoria County

Manvel field: Texas Co. No. 2 T. J. Holcomb, sand 4,042-52 feet, 342 bbls., quarter-inch choke. Texas Co. No. 28-B Belcher, sand 5,079-5,135 feet, 505 bbls., quarter-inch choke. West Columbia field: Texas Co. No. 9 Phillips, sand 5,585-5,650 feet, 483 bbls., quarter-inch choke.

Chambers County

Anahuac field: Humble Oil & Refining Co. No. 7 A. B. Shaver, 7,127 feet, 192 bbls., quarter-inch choke.

Galveston County

Hitchcock field: Maco Stewart No. 9 fee, sand 5,143-59 feet, 464 bbls., quarter-inch choke.

Hardin County

Batson field: Atlantic Refining Co. No. 3 Cruse, perforated casing 5,451-60 feet, 288 bbls., quarter-inch choke.

Harris County

Eureka field: Tide Water Associated Oil Co. No. 1 H. H. Ford, 8,113 feet, abandoned. Fairbanks field: Amerada-Stanolind Oil & Gas Co. No. 2 E. M. White, perforated casing 6,842½-46½ feet, 433 bbls., quarter-inch choke. Union Producing Co. No. 1 Whitehead-Rash-Phillips, sand 6,795-6,852 feet, 600 bbls., quarter-inch choke. Friendswood field: Humble Oil & Refining Co. No. 8-B Herbert Goodwin, sand 6,022-44 feet, 595 bbls., quarter-inch choke; No. 6 Herman Hospital, sand 5,774-6,047 feet, 696 bbls., quarter-inch choke. Tomball field: Humble Oil & Refining Co. No. 8 Kuehn, sand 5,519-57 feet, 403 bbls., quarter-inch choke; No. 10-A Quilter, 5,562 feet, 50 bbls., quarter-inch choke.

Jackson County

Cordelle field: Lewis Production Co. No. 2 Drushel, 2,694 feet, 201 bbls., three-sixteenths inch choke. West field: Magnolia Petroleum Co. No. 5-A West, sand 5,096-5,122 feet, 248 bbls., three-sixteenths inch choke.

Matagorda County

Bay City field: Hamman Exploration Co. No. 2 Foote, 9,100 feet, 225 bbls., quarter-inch choke.

Orange County

Orange field: C. L. Brown No. 2-B Chesson, sand 5,537-75 feet, 139 bbls., eighth-inch choke.

Wharton County

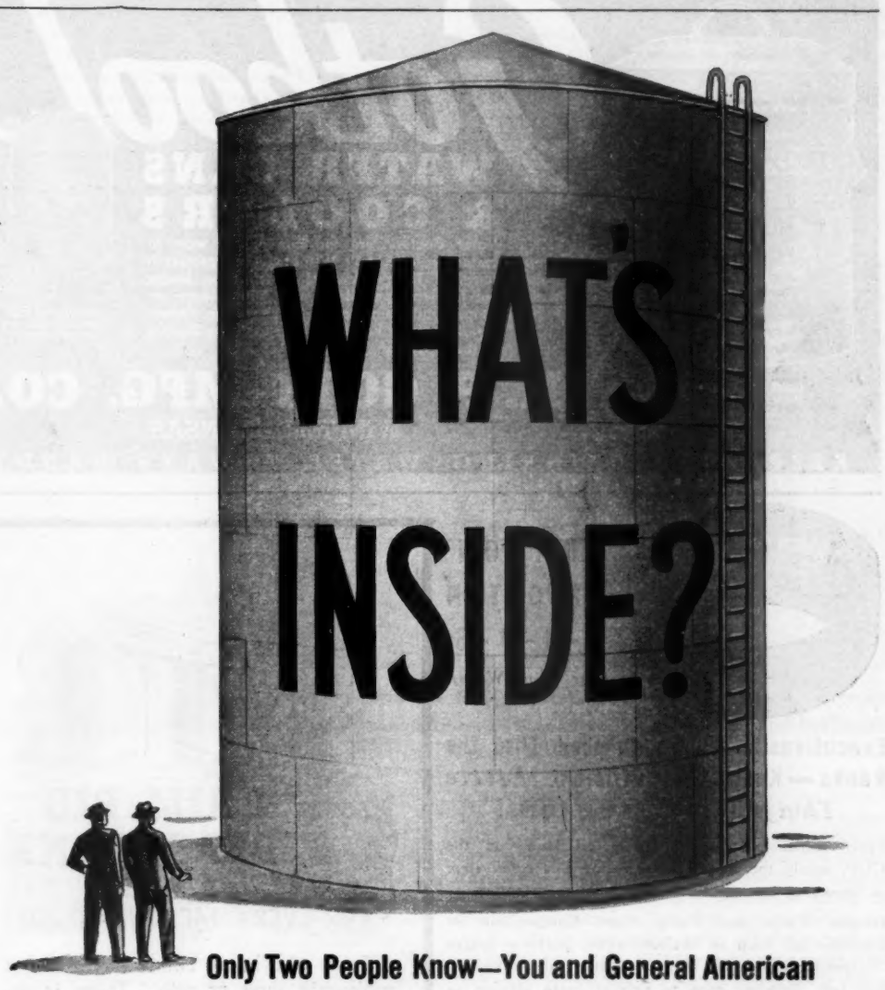
Withers field: Texas Co. No. 52-C Pierce Estate, sand 5,545-51 feet, 386 bbls., quarter-inch choke.

La.-Ark. Fields

(Continued from Page 70)

repairing rig with total depth at 3,455 feet in the Champagnolle area.

Lafayette County has a new wildcat just beginning. It is Wadley, Erwin and others No. 1 G. W.



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Taylor, C NE SW Section 15-19-26, located on a block of about 10,000 acres northeast of the Rodessa fault system. Shell Petroleum Corp. and Ohio Oil Co. have also staked a joint location for a second Lafayette County wildcat, No. 1 Warren, C SE SE Section 13-16-24, in the Stamps area.

Allowable Set

The new state schedule of production allowables places the Shreveport field, heretofore unprorated, on a top production allocation of 1,200 bbls. daily with a flat allowable of 300 bbls. per well. The total state allowable was increased by 12,080 bbls. daily to 247,850 bbls. per day.

Eastern Fields

(Continued from Page 78)

Washington district. In Pleasants County, the Columbian Carbon Co. is drilling at 4,511 feet on the Giles Hammat farm in Grant district.

New Work

In Clay County, the Pittsburgh & West Virginia Gas Co. has a location for a test on the E. D. L. Boggs farm in Otter district, elevation 1,091 feet, and is drilling at 1,220 feet on the W. H. Smith and others lease, same district.

In Gilmer County, Massey & Jarvis Drilling Co. made a location on the Milton Norris heirs, C. O. Rafferty and others tract, in DeKalb district, elevation 785 feet. In Troy district, E. L. Bush made a location on the W. H. Simmons and John Hechett heirs, elevation 909 feet.

Location was made in Harrison County by Eagle Gas Co. on the Charlotte Shreves farm in Coal district, elevation 1,006.3 feet and in Lincoln County by David Fox on the Elisha Adkins farm in Lick Log Hollow in Sheridan district.

In Marshall County, J. C. Ruckman will drill on the Denny heirs lease in Clay district, elevation 699.70 feet. In Marion County, R. S. Monroe is drilling at 2,275 feet in No. 1 Ethel Watson in Mannington district. In Monongalia County, Cummins & Phillips are down 1,780 feet on the Robert Cumberledge farm in Battelle district.

In Pleasants County, Grant & Athey Oil Co. will drill on the M. V. Smith farm in Union district, elevation 720 feet. In Lafayette district, the Watson Oil & Gas Co. will drill No. 11 F. M. Lamp, elevation 769.5 feet.

In Ritchie County, Henaghan & Hanlon, Inc., made a location for No. 3 William Arnett in Grant district, elevation 1,003 feet, and S. R. S. Oil Co. will drill No. 3 C. R. Bradley, elevation 699.4 feet.

In Wayne County, Sinclair Glass Co. will drill on the Mary E. Brown farm, Ceredo district, elevation 523.33 feet. In Putnam County the Teavee Oil & Gas Co. is rigging up on the W. E. Erwin farm.

In Wetzel County, W. F. Burgess is down 400 feet in the Booher and Daugherty test; C. B. Smith has a location on the Henry Elson farm; W. K. Mason on the Martha Wayman farm, all in Proctor district.

Rocky Mountain Runs

Production estimates for week ended November 26:

	Barrels
WYOMING	
Salt Creek	15,220
Big Muddy	1,180
Badger basin	180
Black Mountain	130
Byron	2,800
Cody dome	80
Cole Creek	110
Dallas Derby	350
Dewey dome	10
Dutton Creek	60
Elk basin	530
Frannie	2,440
Garland	2,020
Grass Creek	1,910
G.P. dome	20
Hidden dome	80
Hudson	240
Iron Creek	30
LaBarge	960
Lance Creek	13,230
Lost Soldier	1,560
Mahoney	190
Medicine Bow	2,950
Mule Creek	200
Midway	40
Oregon basin	1,800
Osage	760
Quealy dome	690
Rock River	2,180
Spindletop	30
Poison Spider	240
Teapot	20
Warm Springs	140
Wertz	1,490
Total Wyoming	53,870
MONTANA	
Border	60
Cat Creek	560
Cut Bank	8,080
Dry Creek	1,030
Kevin-Sunburst	3,590
Pondera	390
Total Montana	13,710
COLORADO	
Florence	120
Fort Collins and Wellington	300
Wilson Creek	270
Iles dome	1,820
Moffat	300
Orchard	30
Rangely	50
Tow Creek	150
Price	520
Total Colorado	3,560
NEW MEXICO	
Cooper	4,910
Eaves	900
Eunice	25,290
Hardy	2,780
Hobbs	13,410
Jal	1,010
Langlie	4,860
Lynch	570
Lynn	890
Mattix	3,410
Monument	26,000
North Lynch	40
Penrose	5,620
Rhoades	150
Skelly	1,970
South Eunice	3,200
Vacuum	5,500
Empire State	60
Artesia-Maljamar	6,500
Getty	300
Hogback	200
Rattlesnake	590
Table Mesa	80
Total New Mexico	108,240
Total Rocky Mountain region	179,380

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California Field Report

By L. P. STOCKMAN

Largest Oil Producer in 28 Years Is in S. E. Coalinga

LOS ANGELES, Calif., Nov. 28.—Robert S. Lytle, operating trustee for stockholders of Petroleum Securities Co., a Doheney holding company that was dissolved a few weeks ago, focussed the attention of operators on the southeast Coalinga field of Fresno County on November 26 by completing No. 31-18-F on the Gatchell lease in Section 18-20-16 flowing on a four-hour test at the rate of 15,000 bbls. daily but rated by Harry Fiedendorf, the field superintendent, as being easily capable of flowing 60,000 bbls. per day.

During the four-hour flow test the well made 2,600 bbls. of clean 32.4-gravity oil through a quarter-inch bean and was still building up at the end of the period. This producer, the largest flowing well completed in California since Union Oil Co.'s Lakeview gusher blew in in 1910 flowing approximately 100,000 bbls. per day in the Maricopa Flats section of the Midway-Sunset field, is two locations east of No. 2 Gatchell the discovery well which came in flowing 20,000 bbls. per day. The new well is on acreage held jointly by three operators and operated until recently by Petroleum Securities Co. Stockholders of Petroleum Securities Co. have a 50 per cent interest in the drilling and production activities, and Seaboard Oil Corp. and Honolulu Oil Corp. have a 25 per cent undivided interest each.

Production of the new well is coming from the Avenal zone of Eocene age which is also productive to a smaller degree in the Kettleman North dome field. The productive zone in this well comprises about 70 per cent rich and heavily saturated oil sand and is the best oil zone found by any well in California.

No. 31-18-F Gatchell logged the top of the Avenal zone at 6,964 feet and has 506 feet of oil sand present. The hole was finished with 573 feet of 7-inch liner, including 552 feet of perforated and 6,863 feet of 3-inch tubing. Bottom of the hole is at 7,745 feet in hard siltstone with base of the Avenal zone 5 feet off bottom.

Productive limits of the Southeast Coalinga field located southeast of the southern tip of the East Coalinga field and which is sometimes referred to as the Coalinga Nose have only been determined in one direction, the northwest. The productive area is already over a mile wide and intervening dry holes indicate that the outer productive contours do not extend up into the older section of the East Coalinga field. Leases in the field are all held in large blocks which indicates conservative development and close adherence to cooperative curtailment of production. Production has so far been developed by Standard Oil Co., Superior Oil Co., and the joint interests represented by Lytle.

Petroleum Securities Co., holding company for the various Doheny enterprises, was dissolved on November 1, 1938, and the assets distributed to stockholders, who immediately delegated the work of carrying on development work to R. S. Lytle. The trustee will make no changes in operating personnel and therefore H. H. Dievendorf will continue to direct field development work in the Coalinga area and Harry Miller and George Thompson will direct field operations in the Mount Poso and Kettleman North Dome fields respectively. Drilling and production operations in the Southeast Coalinga field, where substantial production has been developed in the Avenal zone of Eocene age immediately southeast of the southern tip of the East Coalinga field, has been in charge of the company for the joint account of three participating interests. Petroleum Securities Co. has a 50 per cent interest in the joint undertaking and Seaboard Oil Corp. and Honolulu Oil Corp. own 25 per cent each. Field men, using the first three letters of each concern, have shortened the designation to Petseahon just as the Kettleman North Dome Association was shortened to Kenda soon after organization. 'Petseahon No. 88-7-F in Section 7-20-16 is coring ahead in the pay at 7,892 feet. It topped the pay at 7,700 feet and therefore has 192 feet of oil sand opened up to date.

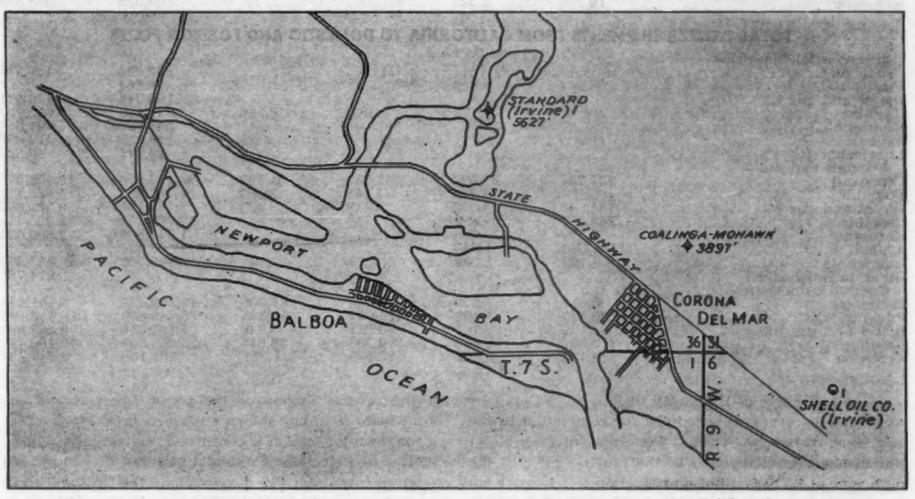
Restriction in drilling by most of the larger operators in an effort to enhance curtailment of production and reduce expenditures has begun to bear fruit as the completion list this week is the smallest recorded in any week this year.

Richfield Oil Corp.'s wildcat in the Tupman area of Kern County and De Soto Oil Co.'s deep zone well in the Long Beach field of Los Angeles Basin are expected to be tested this week. The latter company has made two inconclusive formation tests of its No. 1 Signal which is bottomed at 9,936 feet with a 7-inch water string landed and cemented at 9,741 feet. The upper part of this 195-foot interval below the shoe of the 7-inch is a very tight oil sand with a negligible amount of porosity, but the lower 50 feet consists of a very promising oil sand with favorable production possibilities. This is the deepest well drilled in the Long Beach field. It is in the Lovelady pool and is a joint undertaking from a financial standpoint, operators having offset or adjacent acreage bearing part of the expense. Officials of De Soto Oil Co. are of the opinion that it will show commercial production. A successful completion would result in considerable drilling and deepening of other suitable wells now producing from the upper zones. It will be necessary for many operators to pool acreage as it would be impossible to drill to the deep zone and still keep within the confines of these small holdings which in many cases consists of a few ordinary town lots. Due to the various diversified interests it is doubtful that development work could be retarded even in the face of existing overproduction.

In the Tupman area, in the Elk Hills quadrangle, Richfield Oil Corp. is preparing to make a production test in No. 1 Kern County Land-Western in Section 32-30-25. This wildcat has 271 feet of zone between the shoe of the 8⅝-inch water string landed at 8,406 feet and bottom, 8,677 feet. The zone is a normal oil sand with the coarse-grained and more highly saturated sand in the bottom of the hole and still present when the bit was stopped. The well looks very good and should make an excellent producer if the zone contains sufficient gas to result in sustained production. Richfield Oil Corp.'s leases adjacent to the wildcat total about 5,500 acres, although only a portion of this coverage will be located within the field.

Greeley

Standard Oil Co. No. 2 Fleishauer in the Greeley field of Kern County, bottomed in the Rio Bravo zone at 11,900 feet but plugged back to 11,500 feet, came in wet on a production test a few days ago and the company is running a water witch to ascertain the point of entry. This well, which was finished with a 6⅝-inch water string landed at 11,560 feet and 94 feet of 5-inch liner, including 30 feet of 60-mesh perforations, was brought in flowing 2,680 bbls. of 39.8 gravity oil per day cutting 40 per cent salt water. The plug put in the bottom of the hole may have proven ineffective, in which event the salt water is due primarily to mechanical trouble that can be corrected. No. 1 Ross, located in the extreme southeastern end of the field and which found the Greeley zone barren at 7,905 feet, will be deepened to the Rio Bravo zone immediately. This well was suspended May 23, 1938, at 8,110 feet and if commercial production is developed in the lower horizon it will be the second time that such a thing has been done in that field. No. 11-2 Kern County Land in Section 20-29-26 failed to find the Greeley zone productive but registered substantial production when deepened to the Rio Bravo zone. No. 1 Elrich Community, headed down to the Rio Bravo zone, and No. 11-16 Kern County Land, scheduled for completion in the Greeley zone, are two other wells that Standard Oil Co. is watching as they should reach the projected completion depth soon. Standard controls all of the productve acreage in this field.



Shell Oil Co. has started a wildcat in the Corona Del Mar area east of the Balboa-Newport Bay district of Los Angeles Basin and southeast of dry holes drilled in the past by Standard Oil Co. and Coalinga-Mohawk Oil Co.

Montebello

One well was completed in the Montebello field of Los Angeles Basin in the past week, but this was overshadowed by the increased number of wells that have been taken off production and headed down to the fourth finger of the sixth zone or deeper. If this zone is found highly productive most of the wells now being deepened will be finished at that point. Otherwise the wells will be carried down to the new zone recently found productive in the southwestern end of the structure by Hathaway Oil Co. Brookline Oil Co.'s well, a few

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	November 19		November 12			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	852,826	129,788
Fuel oil	58,964	8,423	.....	.....	58,964	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	.....	.....	73,960	10,566	2,705,801	3,666,922
Kerosene	.....	.....	.....	.....	333,626	328,907
Foreign exports—						
Crude oil	227,754	32,536	362,591	51,799	19,387,399	14,126,978
Fuel oil	61,790	8,827	25,148	3,593	7,941,835	12,713,910
Diesel and gas oil	31,848	4,550	3,028	433	5,153,232	7,195,968
Gasoline	167,940	23,991	.....	.....	7,122,542	7,021,984
Kerosene	5,223	748	.....	.....	950,751	2,003,872
Asphalt	7,563	1,080	.....	.....	7,563	.....
Lubricants	.....	.....	.....	.....	175,560	12,984
Other unfinished oil	.....	.....	.....	.....	.....	974,785
Coastwise-domestic—						
Crude oil	60,611	8,659	221,266	31,609	10,299,420	5,101,883
Fuel oil	142,837	20,405	236,486	33,784	10,744,589	13,893,009
Diesel and gas oil	15,833	2,262	63,321	9,046	1,401,442	2,048,158
Gasoline	288,092	40,870	186,594	26,656	13,096,467	14,188,810
Kerosene	12,177	1,740	12,259	1,751	235,076	417,562

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	196,644	299,315
Gasoline	.....	.....	.....	.....	25,409	25,778
Kerosene	.....	.....	.....	.....	16,124	72,750
Asphalt	.....	.....	.....	.....	490,039	413,885
Lubricants	.....	.....	.....	.....	19,945	25,522
Foreign exports—						
Crude oil	.....	.....	.....	.....	4,740,491	2,969,993
Fuel oil	34,644	4,949	.....	.....	2,323,258	1,871,261
Diesel and gas oil	129,801	18,543	.....	.....	2,995,936	2,743,704
Gasoline	95,912	13,702	.....	.....	4,884,717	4,998,327
Kerosene	.....	.....	.....	.....	696,099	886,153
Asphalt	.....	.....	.....	.....	56,258	.....
Lubricants	8,463	1,209	.....	.....	534,142	474,494
Coastwise-domestic—						
Fuel oil	147,612	21,087	179,211	25,602	5,745,270	5,764,171
Diesel and gas oil	48,296	6,899	.....	.....	1,400,768	1,319,477
Gasoline	131,409	18,773	83,714	11,959	6,968,831	5,277,969
Kerosene	16,255	2,322	.....	.....	559,039	368,326

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	852,826	129,788
Fuel oil	58,964	8,423	.....	.....	58,964	.....
Diesel and gas oil	.....	.....	.....	.....	196,644	476,041
Gasoline	.....	.....	73,960	10,566	2,731,210	3,692,700
Kerosene	.....	.....	.....	.....	349,750	401,657
Asphalt	.....	.....	.....	.....	490,039	413,885
Lubricants	.....	.....	.....	.....	19,945	25,522
Foreign exports—						
Crude oil	227,754	32,536	362,591	51,799	24,127,890	17,096,971
Fuel oil	96,434	13,776	25,148	3,593	10,265,093	14,585,171
Diesel and gas oil	161,649	23,093	3,028	433	8,149,168	9,939,672
Gasoline	263,852	37,697	.....	.....	12,007,259	12,020,311
Kerosene	5,223	746	.....	.....	1,646,850	2,890,025
Asphalt	7,563	1,080	.....	.....	63,821	.....
Lubricants	8,463	1,209	.....	.....	709,702	487,478
Other unfinished oil	.....	.....	.....	.....	.....	974,785
Coastwise-domestic—						
Crude oil	60,611	8,659	221,266	31,609	10,299,420	5,101,883
Fuel oil	290,449	41,493	415,697	59,385	16,489,859	19,657,180
Diesel and gas oil	64,129	9,161	63,321	9,046	2,802,210	3,367,635
Gasoline	417,501	59,643	270,308	38,615	20,065,298	19,466,779
Kerosene	28,432	4,062	12,259	1,751	794,109	785,888

hundred feet north of Hathaway Oil Co. No. 1 Dore, the deep zone discovery, is scheduled for completion in the new zone within two weeks. Pongratz Oil Co.'s No. 1 Martin has been completed in the fourth finger of the sixth zone at 6,710 feet but a production test has not yet been conducted. V-8 Oil Co. is rotating ahead in No. 1 Estelle at 6,515 feet; Montebello Wesco Oil Co. is going ahead at 6,560 feet in No. 1; Montebello Reservoir Oil Co. is making hole at 6,670 feet and Standard Oil Co. is going ahead at 6,700 feet in No. 3 Braun, a recent completion in the upper zone, which failed to hold up. None of the several fingers of the zones discovered in the Montebello field has shown sustained production as far as the town lot section is concerned. On acreage held by St. Helens Petroleum Co. and Union Oil Co., somewhat removed from intensive development, the fifth and sixth zones have registered excellent production. The new well completed in the past week was No. 2 Taylor of St. Helens Petroleum Co., finished flowing 500 bbls. of clean 36.7 gravity oil and 750,000 feet of natural gas per day from 6,250 feet after the hole had been finished with 150 feet of 5½-inch liner, including 115 feet of perforated. It is flowing through two 1½-inch beans and shows a pressure of 150 pounds on the tubing and 400 pounds on the casing.

Wilmington

Union Pacific Railroad Co. in the Wilmington field completed No. 86, flowing 530 bbls. of clean 20.5 gravity oil per day from the Ranger zone with bottom of the hole at 3,542 feet. This well was finished with 344 feet of 6⅝-inch liner including 89 feet of 60 mesh screen with the 11¾-inch water string landed at 2,584 feet. Union Pacific's well No. 93 was good for 791 bbls. of 28.3 gravity oil daily from the Terminal zone with bottom of the hole at 4,093 feet. It was finished with an 8⅝-inch liner including 483 feet of 60 mesh landed at 3,576 feet and cemented through perforations at 3,030 feet. Perforations were located at 3,036-3,178 feet; 3,199-3,319 feet; 3,334-90 feet and at 3,400-3,565 feet. Beneath the 8⅝-inch liner the company used 528 feet of 6⅝-inch liner, including 419 feet of 60 mesh perforations and cemented through perforations at 3,626 feet. Perforations in the interval were located at 3,628-3,712 feet; 3,727-3,905 feet; 3,915-4,011 feet and 4,031-93 feet. Union Pacific Railroad Co. has two additional wells scheduled for immediate completion. Universal Consolidated Oil Co. completed No. 3 Newport, flowing 1,095 bbls. of 25.2 gravity oil per day from the lower Terminal zone with bottom of the hole at 4,100 feet. In order to keep production within the prescribed allowable the company is not producing the upper Terminal or Ranger zones. This new well was finished with 1,434 feet of 8⅝-inch liner including 990 feet of perforated landed at 4,100 feet and carrying perforations at 2,672-3,000 feet; 3,190-3,300 feet; 3,398-3,832 feet and at 3,982-4,100 feet. The cement job was through perforations at 3,185 feet, 3,395 feet and at 3,977 feet. General Petroleum Corp. added another good well on its Harbor Community lease in the Wilmington field when No. 28 was completed flowing 582 bbls. of 28.8 gravity oil per day through a 27/64-inch bean from the Terminal zone with bottom of the hole at 3,900 feet. This well, which was shut in immediately subsequent to completion, due to an excessive gas-oil ratio, was finished with an 8⅝-inch liner including 960 feet of 6⅝-inch liner on the bottom and a combination 3-inch and 2½-inch tubing with 1,002 feet of the latter on bottom. The liner in this well was perforated at 2,534-2,939 feet; 3,477-3,587 feet and at 3,628-3,900 feet with 60 mesh and was cemented through perforations at 3,475 feet. There are several former upper zone wells in this field being headed down to the Ford zone in the town lot area and a check of progress made during the past week indicates that at least two should be ready for production tests in the near future. This zone has failed to come up to expectations in the subdivided area but additional development may change the aspect of the situation and lead to additional deepening operations.

Rosecrans

Drilling operations in the Rosecrans field of Los

(Continued on Page 89)

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Domingues	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Santa Paula*	Wheeler Ridge	Kettleman Hills	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	..
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	..
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.89
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	..
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	..
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	..
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	..
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	..
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	..
33-33.9	...	...	...	...	...	...	...	1.32	...	1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	..
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	..
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	..
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	..
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	..
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	..
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	..
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	..

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 14.9 degrees, 60 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Rocky Mountain Area

By T. R. INGRAM

Cut Bank, Montana, Has Big Gasser and a 400-Bbl. Well

DENVER, Colo., Nov. 28.—Persons holding oil and gas prospecting permits on the public domain which expire December 31, 1938, have been notified to exchange permits for leases by registers of the district land offices.

N. Spatter's test in the Bondad district, La Plata County, Colorado, showed for 1,500,000 feet of gas per day at 2,240 feet and is drilling ahead to the Dakota. The Steamboat Springs Syndicate's wildcat in Routt County found water in the Sundance and was abandoned.

C. D. Cunningham and others' wildcat on the Horne structure, Carbon County, Wyoming, was abandoned in the red beds. The Ohio Oil Co.-California Co. No. 5-A Kyle, at Medicine Bow, will make a small well in the Sundance. Location was released for another outside well on this structure. An important wildcat east of Lance Creek is to be drilled by F. F. Hintze and associates. Osage had one completion, a 50-bbl. well, and one new operation.

Valentine M. Kirk and associates will drill a deep test with rotary on the north flank of Dry Creek, Carbon County, Montana. The Glacier Production Co. had two good completions in Cut Bank, one a 22,500,000-foot gasser and the other swabbed 201 bbls. in 10 hours. Kevin-Sunburst had a completion for 30 bbls. per day in the Lewistown-Flathead Oil Co.'s wildcat on the northeastern side.

NEW MEXICO

Westmount Oil Co. was reported completing its No. 1 Amerada-State, C NW NE Section 12-17-36, wildcat in the Lovington area of Lea County, as a gas well, thus delaying verdict on the oil possibilities of the district. The hole was bottomed at 3,986 feet in anhydrite, where it blew out with estimated production of sweet gas ranging as high as 30,000,000 feet daily. The gas was killed, but decision to complete as a gas well came after a squeeze job failed to cement off split in 8⅝-inch casing at 310 feet. The casing was set at 1,936 feet. Operators then cemented 5½-inch casing at 3,018 feet, and plug was due to be drilled.

Log of the wildcat showed air at 2,900-40 feet; show of gas at 3,230-50 feet; an estimated 8,000,000 to 10,000,000 feet of gas at 3,308-19 feet; broken shows of gas in sand and anhydrite from 3,905-50 feet; clean gas sand from 3,956 to 3,948 feet, with hard formation at 3,984-86 feet. Yates sand was topped at 3,060 feet, plus datum 770, some 142 feet higher than the formation was found in a dry wildcat drilled 1½ miles south and one-fourth mile east of No. 1 Amerada-State. It also checked 77 feet higher on anhydrite and 202 feet higher on the gas sand topped at 3,956 feet than the dry hole to the south. Observers agreed that the Westmount discovery, considered the most important find in Lea County since the Vacuum extension, had not been drilled sufficiently deep to test the oil horizon.

Amerada Petroleum Corp. was rigging up rotary at No. 1-LA State, C SE SW Section 1-17-36, diagonal northwest offset to the discovery. Stanolind Oil & Gas Co. No. 1 State, C SW SE Section 1-17-36, north offset, is a location.

Italo Petroleum Corp. No. 2-A-22 Carlson, NE SW SE Section 22-25-37, was completed as one of the largest natural producers in the Jal sand area of southeastern Lea County. It topped sand at 3,250 feet, was bottomed at 3,354 feet and flowed 50 bbls. of oil for five hours naturally through casing perforations at 3,225-29 feet, rating as a 1,200-bbl. well.

Other Lea County completions:

Texas Co. No. 1-U State, C NE NE Section 2-18s-34e, Vacuum area, was completed naturally, flowing 52 bbls. of oil an hour, with 980,000 feet of gas, through seven-eighths inch choke on 2-inch tubing set at 4,667 feet. Total depth was 4,710 feet, top of pay 4,400 feet.

Ohio Oil Co. No. 1 State-Shugart, C NE SE Section 34-17s-34e, found pay at 4,335 feet and flowed 58 bbls. of oil hourly. Gas gauged 400,000 feet daily. Total depth was 4,710 feet.

Culbertson & Erwin No. 2 Dabbs, NE NW NW Section 35-25s-37e, at total depth of 3,330 feet, was plugged back to 3,314 feet and flowed 192 bbls. of oil hourly. Top of pay was 3,200 feet.

Amerada No. 1 Johnson, C NW SW Section 27-24s-37e, flowed 134 bbls. of oil in eight hours through 11/64-inch choke on 2-inch tubing set at 3,465 feet, from best pay found at 3,398 to 3,477 feet, in sand. Total depth was 3,492 feet.

Olean Petroleum Co. No. 1 Ferrell, C NE SE Section 22-22s-37e, Penrose area, was bottomed at 3,684 feet and plugged back to 3,664 feet. The well flowed 56 bbls. of oil per day. Top of pay was 3,531 feet.

Penrose & Rowan No. 2 Carey, C NE SW Section 22-22s-37e, an old well deepened to 3,685 feet, set 2-inch at 3,528 feet and flowed 65 bbls. daily.

One well was completed in Eddy County, it being English & Harmon No. 1 Daugherty, NE NE SW Section 3-17s-27e, which was completed as a gas well, gauging 1,000,000 feet of sweet gas daily at total depth of 2,319 feet. Top of gas pay was 1,860 feet.

Lea County

Barnsdall Oil Co. No. 1 Humble-State, C NE SE Sec. 33-16-36. Drlg. 3,135 ft.
Amerada Pet. Co. No. 1-LA State, C SE SW Sec. 1-17-36. Drk.
Amerada Pet. Corp. No. 5-VA State, C NW NW Sec 22-17-35. Drlg. 4,404 ft.
Cities Service No. 1-L State, C SE SW Sec. 15-17-35. Drlg. 4,442 ft.
Continental Oil Co. No. 1 State H-22, C SW SE Sec. 22-17-34. Spud.
Continental Oil Co. No. 3 State H-35, C NW NE Sec. 35-17-34. Drlg. 3,520 ft.
Continental Oil Co. No. 1 State 1-7, NE NW NE Sec. 7-17-34. T.D. 4,895 ft.; C.O. at 4,764 ft.
Devonian Oil Co. No. 1 State-Ritts, C NW NW Sec. 21-17-34. Cg. 4,732 ft.
Helmerich & Payne and Continental Oil Co. No. 1-G-36 State, C NW SW Sec. 36-17-35. T.D. 4,950 ft.; C.O. to 4,925 ft.; to P.O.P.
Magnolia Pet. Co. No. 2-G State, C SE NE Sec. 24-17-34. Drlg. 2,970 ft.
Magnolia Pet. Co. No. 2-M State, NW NW Sec. 34-17-35. Drlg. 3,838 ft.
Magnolia Pet. Co. No. 18 State-Bridges, C SE NW Sec. 24-17-34. T.D. 4,700 ft.; to test.
Magnolia Pet. Co. No. 19 State-Bridges, C NW NW Sec. 24-17-34. T.D. 4,342 ft.; rng. csg.
Maljamar O. & G. Co. No. 1-B Baish, C NE NW Sec. 22-17-32. T.D. 3,600 ft.; R.U.S.T.
Maljamar O. & G. Co. No. 6 Mitchell, C SW NE Sec. 20-17-32. Drlg. 3,080 ft.
Maljamar O. & G. Co. No. 1-B State. C SW SE Sec. 16-17-32. T.D. 4,125 ft.; S.I.
Ohio Oil Co. No. 3 State-McCallister, C SW SW Sec. 25-17-34. Drlg. 565 ft.
Phillips Pet. Co. No. 2 Hale, C NE SW Sec. 35-17-34. Drlg. 3,983 ft.
Phillips Pet. Co. No. 3 Hale, C SE SE Sec. 35-17-34. Drlg. 2,610 ft.
Phillips Pet. Co. No. 1 Mabel, C SW NW Sec. 35-17-34. T.D. 4,678 ft.; to test.
Phillips Pet. Co. No. 12 Santa Fe, C NE SW Sec. 28-17-35. S.D. 1,771 ft.; repairs.
Phillips Pet. Co. No. 13 Santa Fe, C NW NW Sec. 28-17-35. Drlg. 1,966 ft.
Phillips Pet. Co. No. 14 Santa Fe, C SE SE Sec. 20-17-35. Drlg. 2,989 ft.
Phillips Pet. Co. No. 15 Santa Fe, C NE NE Sec. 28-17-35. Drlg. 3,440 ft.
Phillips Pet. Co. No. 17 Santa Fe, C SE SW Sec. 26-17-35. Drlg. 2,208 ft.
Phillips Pet. Co. No. 19 Santa Fe, C NW NE Sec. 35-17-35. Drlg. 1,268 ft.
Shell Pet. Corp. No. 2-B State, C NE SE Sec. 30-17-35. Drlg. 3,830 ft.
Shell Pet. Corp. No. 2-F State, C SE SW Sec. 29-17-35. T.D. 3,338 ft.; S.D., repairs.
Shell Pet. Corp. No. 1-H State, C NW SW Sec. 29-17-35. T.D. 4,700 ft.; swb. 122 B.O. in 19 hrs. and S.I.
Shell Pet. Corp. No. 1-I State, C SW NW Sec. 29-17-35. T.D. 4,753 ft.; S.I.
Shell Pet. Corp. No. 1-N State, C NW NE Sec. 28-17-35. S.D. 3,482 ft.; repairs.
Shell Pet. Corp. No. 1-O State, C SE NE Sec. 34-17-34. T.D. 4,785 ft.; swb. 30 B.O. in 4 hrs.
Shell Pet. Corp. No. 1-S State, C NE SE Sec. 21-17-35. T.D. 4,745 ft.; C.O.
Shell Pet. Corp. No. 1-V State, C NE SE Sec. 21-17-35. Drlg. 3,444 ft.
Standard Oil Co. of Texas No. 1 State Lease 5, C NW NW Sec. 27-17-35. T.D. 4,654 ft.; F. 67 B.O.P.D.; S.I.
Standard Oil Co. of Texas No. 2 State, Lease 3, C NW NW Sec. 32-17-35. Drk.
Standard Oil Co. of Texas No. 2 State, Lease 4, C SW SE Sec. 27-17-35. Drlg. sdy. L. 4,453 ft.
Standard Oil Co. No. 2 State, Lease 5, C SE NW Sec. 27-17-35. W.O.C. 1,648 ft.
Texas Co. No. 2-N State, C NW SW Sec. 30-17-35. T.D. 4,720 ft.; F. 46 B.O. in 7 hrs. and died.
Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. T.D 4,725 ft.; S.D. for C.O. unit.
Texas Co. No. 1-V State, C NE NW Sec. 34-17-34. T.D. 4,725 ft.; acd. and swb. 2 B.O.P.H.; re-treat and swb. 5 B.O.P.H.
Texas Co. No. 1-W State, C SW SE Sec. 13-17-34. T.D. 4,680 ft.; swb. 45 B.O. in 7 hrs.
Westmount Oil Co. No. 1 Amerada, C NW NE Sec. 12-17-36. T.D. 3,986 ft.; est. 7,000,000 to 10,000,000 ft. gas; prep. to cmt.
Westmount Oil Co. No. 1 State, C SE NW Sec. 30-17-35. T.D. 4,728 ft.; S.I.
Phillips Pet. Co. No. 16 Santa Fe, C NW SW Sec. 5-18-35. W.O.C. 1,552 ft.
Texas Co. No. 3-R State, C SE NE Sec. 6-18-35. Drlg. 970 ft.
Continental Oil Co. No. 3 Britt B-15, C W½ NW SW Sec. 15-20-37. T.D. 3,836 ft.; F. 110 B.O. in 6 hrs. with 4,670,000 ft. gas.
Continental Oil Co. No. 2 Meyer B-31, C NE SW Sec. 31-20-38. Drlg. 3,270 ft.
Continental Oil Co. No. 8 Reed B-23, CEL SW NE Sec. 23-20-36. W.O.C. 268 ft.
Continental Oil Co. No. 2 State C-16, SW SW NW Sec. 16-20-37. W.O.C. 2,450 ft.
Continental Oil Co. No. 2 State A-36, NE SE Sec. 36-20-36. Drlg. 3,225 ft.
J. M. Rush No. 3 State A-20. NW SW SE Sec. 20-20-37. T.D. 138 ft.
Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. W.O.C. 1,226 ft.
Continental Oil Co. No. 1 Hawk B-6, NW NW SE Sec. 6-21-37. Drlg. 2,760 ft.
Continental Oil Co. No. 4 Lockhart B-31, S½ SE SE Sec. 31-21-36. T.D. 3,801 ft.; W.O.C.
Gulf Oil Corp. No. 3-D Arnott-Ramsey, C NE NE Sec. 33-21-36. T.D. 3,885 ft.; tstg.; will not flow.
Magnolia Pet. Co. No. 1 Carson, C SE NE Sec. 31-21-37. Loc.
Magnolia Pet. Co. No. 3 Hardy, C NE NW Sec. 29-21-37. T.D. 3,670 ft.; R.U.S.T.
J. M. Rush No. 1 Weatherly, C SW NW Sec. 21-21-37. Drlg. 300 ft.
Stanolind O. & G. Co. No. 4-C Hill, C SE NW Sec. 5-21-37. T.D. 3,780 ft.; to shoot.
Twin Oil Co. No. 1 Hare, C SE SW Sec. 33-21-37. T.D. 3,754 ft.; F. est. 4 B.O.P.H.
Twin Oil Co. No. 2 Hare, C NW SW Sec. 33-21-37. Drlg. 3,602 ft.
Twin Oil Co. No. 2 State, C SW NW Sec. 32-21-37. T.D. 1,440 ft.; W.O.C.
Francis C. Wilson No. 2 State, C NW NE Sec. 7-21-35. R.U.S.T. 3,635 ft.
J. C. Clower No. 1-B Manda, NE NE NW Sec. 28-22-37. Drlg. 1,210 ft.
Continental Oil Co. No. 3 State J-2, C SE NE Sec. 2-22-36. Drlg. 3,818 ft.; F. 104 B.O. in 1 hr.
Devonian Oil Co. No. 2 Christmas, SE SW SE Sec. 28-22-37. Loc.
Gulf Oil Corp. No. 1-F Mattern, C NW NE Sec. 1-22-36. Drlg. 3,531 ft.
Humble O. & R. Co. No. 4 Greenwood, C SE SW Sec. 9-22-37. R.U.R.
Humble O. & R. Co. No. 4-H State, C NE NW Sec. 34-22-37. W.O.C. 3,405 ft.
Ohio Oil Co. No. 2 Sanders, NW NW Sec. 1-22-36. Drlg. 2,572 ft.
Olean Pet. Co. No. 1 Brunson, SW SE SE Sec. 4-22-37. T.D. 3,694 ft.; S.O.
Olean Pet. Co. No. 2 Brunson, SW NE SE Sec. 4-22-37. Drlg. 1,900 ft.
Olean Pet. Co. No. 2 Farrell, SW SE SE Sec. 22-22-37. C.&P.
Lem Peters No. 2 T. O. May, NW NE NE Sec. 34-22-37. S.D. 3,435 ft.; repairs.
Lem Peters No. 3 L. J. May, C NE SE Sec. 27-22-37. Straightened hole and drlg. 1,775 ft. in new hole.
Shell Pet. Corp. No. 4 Grizzell, C SW SE Sec. 8-22-37. Drlg. 836 ft.
Skelly Oil Co. No. 1 Baker, C SW SW Sec. 10-22-37. T.D. 3,752 ft.; C.O. 3,665 ft. and shot.
Skelly Oil Co. No. 2 Baker, C NW NW Sec. 27-22-37. (O.W.D.D.); T.D. 3,714 ft.; P.B. 3,678 ft. and C.O.
Skelly Oil Co. No. 1-B King, C NE SW Sec. 33-22-37. T.D. 3,710 ft.; F. 79 B.O. in 22 hrs.; last report.
Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; rng. tbg.
Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. Loc.
Gulf Oil Corp. No. 1 Alley, C NE SE Sec. 10-23-37. T.D. 3,715 ft.; P.B. 3,686 ft.
J. M. Murray, Tr., No. 1 Fanning, SE SW NW Sec. 33-23-37. T.D. 3,434 ft.; sqzd. on bttm.; W.O.C.
Skelly Oil Co. No. 4 Simms, C NW NW Sec. 3-23-37. Drlg. 3,147 ft.
Texas Pacific Coal & Oil Co. No. 7-A State, NW NW NW Sec. 32-23-36. Drlg. 3,574 ft.
Gulf Oil Corp. No. 1 Holt, C SW SE Sec. 16-24-37. T.D. 3,548 ft.; top pay 3,425 ft.; swb. 36 B.O. in 24 hrs.
Parker Drlg. Co. No. 3 Erwin, C W¼ NE SW Sec. 35-24-37. Rng. csg. 1,305 ft.

Pressure range, 0-3000 and 0-5000 lb. per sq. in.

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SUBSCRIPTION?

Schermerhorn Oil Co. No. 3 Woolworth, NW NW SE Sec. 28-24-37. Drlg. 3,148 ft.
Shasta Oil Co. No. 3 Woolworth, NE SE NW Sec. 28-24-37. T.D. 3,450 ft.; drlg. plug.
Texas Co. No. 4 Black, C SE NW Sec. 21-24-37. Drlg. 3,163 ft.
Weier Drlg. Co. No. 2 Woolworth, NE SE SW Sec. 28-24-37. Drlg. 2,925 ft.
Sam Weiner No. 1 Woolworth, SE NE SW Sec. 33-24-37. T.D. 3,550 ft.; tstg.; no ga.
Anderson & Prichard No. 4 Carlson-Harrison, NE SE NE Sec. 27-25-37. T.D. 3,349 ft.; F. 5 B.O.P.H.
Anderson & Prichard No. 4 Wells, C NW NW Sec. 5-25-37. T.D. 3,422 ft.; W.O.C.
Geo. F. Getty No. 1-G State, NW NW NW Sec. 2-25-37. Loc.
Gulf Oil Corp. No. 5 Stuart, C NE NE Sec. 10-25-37. Drk.
Italo Pet. Corp. No. 1 Carlson A-23, NW NW SW Sec. 23-25-37. Drk.
Italo Pet. Corp. No. 1 Carlson B-27, NE NW NE Sec. 27-25-37. Drlg. 3,072 ft.
Italo Pet. Corp. No. 2 Carlson B-27, NE NE SE Sec. 27-25-37. Drlg. 2,440 ft.
Italo Pet. Corp. No. 1 Indiana Pet. Corp., NE NE NE Sec. 6-25-37. Drk.
Richmond Drlg. Co. No. 1-A State, C NW SW Sec. 2-25-37. Drlg. 1,060 ft.
Sam Weiner No. 3 Smith, C N½ NE SE Sec. 4-25-37. T.D. 2,890 ft.; blew out; S.D., repairs.

Eddy County

Carper Drlg. Co. No. 3 Robinson, SW SW SE Sec. 25-16-31. T.D. 3,620 ft.; S.O.; rng. csg.
Dominion O. & G. Co. No. 2 Johnson, C SE NE Sec. 35-16-31. T.D. 4,033 ft.; F. 30 B.O. in 3 hrs.; died; S.I.
Dominion O. & G. Co. No. 3 Johnson, C NE SW Sec. 35-16-31. T.D. 3,950 ft.; swaging at 2,480 ft.
Fullerton Oil Co. No. 3-A Johnson, C NW SW Sec. 35-16-31. Drlg. 3,859 ft.; S.O.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE Sec. 17-17-31. Drlg. 3,523 ft.; F. 25 B.O.P.D.
J. O. & J. H. Hammond No. 1 Paris, NE NW NW Sec. 5-17-29. Loc.
English & Harmon No. 1 Stogner, C NW SE Sec. 31-17-31. R.U. Mach.
J. E. Hughes No. 1 Brooks, C NE NE Sec. 19-17-28. Loc.
Etz Bros. No. 5 State, SE NE SE Sec. 16-17-30. T.D. 2,530 ft.; rng. csg.
Flint Prod. Co. No. 1-L Dexter, SE NW SE Sec. 15-17-30. Spud.
Franklin Pet. Corp. No. 1 McIntyre, NW NE SE Sec. 20-17-38. T.D. 3,348 ft.; F. 40 B.O.P.D.
F. G. Keyes No. 3 Red Gulch, NW NW NE Sec. 16-17-28. R.U. mach.
Red Lake Oil Co. No. 1 Vandagriff, SE SE NE Sec. 20-17-38. T.D. 1,950 ft.; F. est. 50 B.O.P.D.
C. S. Powell No. 1 Smith, NW NW NE Sec. 6-17-29. Loc.
Premier Pet. Co. No. 1 Maddren-Beeson, NE SW SE Sec. 28-17-30. T.D. 3,418 ft.; S.D.O.
Premier Pet. Corp. No. 2-B Beeson, SW NW SW Sec. 27-17-30. Drlg. 3,215 ft.
Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. S.D.O. 979 ft.
B. Cockburn No. 1 State, C SW NE Sec. 16-18-31. T.D. 3,303 ft.; R.U. pmp.
Farmer & Tallmadge No. 1 Hubell, NE SW Sec. 4-18-25. S.D. 360 ft.
Paton Bros. No. 1 Erwin, C SE SE Sec. 5-18-31. Drlg. 515 ft.
Rhodes Drlg. Co. No. 1 Swearingan, NE SE NW Sec. 14-18-31. Drlg. 280 ft.
Worth Drlg. Co. No. 1 Tayler, C SW SW Sec. 12-18-31. Rmg. 3,546 ft.; W.I.H.
Yates et al No. 1 Yates, C NW SW Sec. 6-18-30. S.D. 2,130 ft.; repairs.
Carper Drlg. Co. No. 1 Day, NE NE NE Sec. 3-19-21. T.D. 2,748 ft.; P.B. 2,695 ft.; F. 94 B.O. in 2 hrs. and died.
George E. Robb No. 1 Cannon, NE SW SE Sec. 4-19-30. S.D.O. 200 ft.
George E. Robb No. 1 Vandagriff, SW NE Sec. 6-19-31. S.D.O. 200 ft.
Martin Yates, Jr., No. 1 Bowers, SW SE SE Sec. 31-19-27. T.D. 1,180 ft.; S.D., repairs.
C. F. Ingram No. 1 Page, NE NE SW Sec. 15-21-28. T.D. 2,844 ft.; C.O. 2,841 ft.
F. E. Baker No. 1 Eddy, NE Sec. 12-22-27. T.D. 2,765 ft.; rec. tools and S.D.O.

Chaves County

J. & L. Drlg. Co. No. 2 Hurd, SW Sec. 11-11-26. Drlg. 1,880 ft.
Nay Hightower No. 1 Billingslea, C SW NE Sec. 28-11-30. T.D. 770 ft.; S.D. for csg.
E. J. Fisher No. 1 Foster, C NW NW Sec. 7-15-26. T.D. 1,281 ft.; S.D.O.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. Sec. 15-15-30. T.D. 3,982 ft.; S.D.O.

De Baca County

N. F. Woods No. 1 Jones, C NE SW Sec. 17-4n-20. T.D. 190 ft.; S.D.O.
James D. Ward No. 1 Summers, SE NE SW Sec. 15-4n-24e. T.D. 680 ft.; S.D.O.

Roosevelt County

Shell Pet. Corp. No. 1 Harwood, C S½ SE SE Sec. 27-7s-35e. Cg. 4,475 ft.; no shows; rmd. hole to 4,370 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 Pajarito, Sec. 22-9n-1e. Drlg. below 700 ft.
Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW Sec. 10-11n-4e Drlg. 4,400 ft.

McKinley County

Pet. Products Corp. No. 5 Santa Fe, SW NE NW Sec. 1-17-9w. Cmtd. 6⅝-in. 1,604 ft.; W.O.C.
S. Dysart No. 3-A Govt., NE NW NE Sec. 14-14n-10w. Landed 12½-in. at 1,320 ft.; will cmt.

Rio Arriba County

The Oil City Petroleum Co. No. 1 Azotea, SW SW NE Section 11-31n-2e, Azotea district, had water in the top of the Dakota at 455 feet and was plugged and abandoned at 460 feet. Dakota ran 60 feet lower than expected and rig is being moved a mile to the east for No. 2 Wirt-Sanchez.

Oil City Pet. Co. No. 2 Wirt-Sanchez, C Sec. 12-31n-2e. M.I. (first report).

San Juan County

Interests affiliated with the Kutz Canon Oil & Gas Co. are starting a well in the Kutz Canon district in the Kutz Deep Test, Inc. No. 1.

Kutz Deep Test, Inc. No. 1 Govt., C NW NW Sec. 28-28n-10w. Rigged and rdy to spd.
Continental Oil Co. No. 84 Rattlesnake, NW NW SW Sec. 1-29n-19w. Drlg. 265 ft. (first report).
Jack Amenda No. 1, NE NE Sec. 14-29n-13w. Drlg. 625 ft.
Al Greer No. 2 fee, SW SE SW Sec. 10-30-11w. Drlg. blue sh. 830 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE Sec. 33-30n-11w. S.D. 1,885 ft.; W.O. csg.; S.O. in Farmington sd. but will D.D. to Picture Cliff.
Goodrun & Vincent No. 2 Hare, SE SE Sec. 23-29n-11w. T.D. 1,690 ft.; S.G. 1,510-40 ft.; coal 1,540-50 ft.; cmtd. 5½-in. 1,500 ft.; W.O.C.
Goodrun & Vincent No. 1 Seitzinger, NE NW SE Sec. 23-29n-11w. Drlg. 680 ft.
Ted Whetstine No. 1 McGee, NW NW Sec. 20-30n-11w. S.D. 434 ft. for mat.
Bullock & Noland No. 1 Bunce, SW SE Sec. 24-29n-11w. Drlg. 1,023 ft.
San Juan O. & G. Co. No. 1 Cassidy, C SE SE Sec. 19-29n-11w. Drlg. 828 ft.

San Miguel County

Southwest Drlg., Inc., No. 1 Conchas, NW NE Sec. 34-17n-21e. T.D. 1,450 ft.; prep. run 13⅜-in. for W.S.O.

Socorro County

Central New Mexico Oil Co. No. 1 Belen gr., SE NW Sec. 16-3n-1e. S.D. 2,965 ft. after rng. 12½-in.

Torrance County

Drice Co. No. 1 Garland, NE SE NE Sec. 32-7n-7e. S.D.O.; H.F.W. at 1,405-13 ft.
Estancia Valley Carbon-Dioxide Dev. Co. No. 1 Crawford, SE NE NE Sec. 32-7n-7e. Drlg. 1,080 ft.
Chief O. & G. Co. No. 1 Lee, NW NW SW Sec. 12-6n-7e. T.D. 2,215 ft.; C.O. 300 ft.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW Sec. 23-7n-1e. Taken over by C. M. Joiner; will install rot. for 6,000-ft. test.
C. A. Grober et al No. 1 Fuqua, NE NE Sec. 19-5n-3e. T.D. 840 ft. (C.O.); W.O. title adj.

COLORADO

Notice has been sent out by the register of the Denver land office to owners of oil and gas prospecting permits granted under the general leasing act of February 25, 1920, on public land which have been extended to December 31, 1938, that permits must be exchanged for leases by that date under the provisions of the act of August 21, 1935. Permits extended until December 31, 1939, do not have to be exchanged until that time. There are approximately 450 permits expiring at the end of this year in the Denver district and others extending to a year later. Similar notices have been sent out by the registers of all U. S. land offices in the public lands states.

Archuleta County

The Axeline Oil Co. (Lindstrum and others) are drilling on the southern end of the Price structure at 360 feet. Location is not available, but is about half a mile south of the Cortez Oil Co. No. 1-A Crowley in Section 2-32n-2e.

The Boone Development Co.'s wildcat on the Boone dome, which has been shut down at 303 feet for casing since last June, has the pipe on the ground and is preparing to run string and resume.

Boone Dev. Co. No. 1 Newton, SE NW SE Sec. 18-33n-1e. T.D. 303 ft.; prep. to run 10-in.
Pagosa Oil & Dev. Co. No. 1 Macht, C Sec. 32-36-1w. T.D. 1,840 ft.; rmg. 6¼-in. with bttm. hole pkr. to top Dakota.

Adams County

J. B. Furstenberg et al No. 1 Hills, SE SE SE Sec. 27-3s-64w. S.D. 4,370 ft.

Elbert County

Plymouth Oil Co. No. 1 Brosky-Union Pacific, C SW SW Sec. 19-10s-60w. T.D. 7,005 ft. in blk. sh.; burying W. line and housing in for winter operations.

Fremont County

Stanley Thomas No. 1 Rickwalt, SE SE Sec. 2-19s-70w. S.D. 2,460 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE Sec. 36-7s-88w. S.D. 2,008 ft. for winter after W.S.O. with 5⅛-in. at 1,757 ft.

La Plata County

A wildcat being drilled by N. Spatter in the Bondad district 6 miles north of the New Mexico line and 15 miles south of Durango, had a show of gas at 2,140 feet, followed by a considerable increase at 2,240 feet where it gauged 1,500,000 feet. At this depth control equipment was installed and boiler was moved back. It is drilling ahead below 2,250 feet with the Dakota as the objective. The location is about 18 miles east of the Red Mesa district where a number of wells were drilled several years ago with shows for small producers, and north of the Aztec-Bloomfield district in New Mexico.

N. Spatter No. 1-X Bryce, SE SW SW Sec. 31-33n-9w. Drlg. below 2,250 ft.

Las Animas County

Hulme-Johnston-Allison No. 1 Azar, SE SE NW Sec. 27-34s-58w. Drlg. 740 ft. in 15-in. hole.

Mesa County

Continental Oil Co. et al No. 1 Miller, SW SW NW Sec. 36-8s-91w. S.D. 9,410 ft. for winter.

Moffat County

Stanolind O. & G. Co. No. 35-SD Parkinson, SE SE NE Sec. 22-4n-92w. T.D. 3,483 ft.; cmtd. liner.
Isenberg-Parker-Myers No. 1 Myers-State, NW SE NE Sec. 36-4n-103w. Drlg. 375 ft.; prep. to run 10-in. cave string.
C. R. Privett No. 1 Sutton, NE NE SW Sec. 1-5n-96w. T.D. 860 ft.; rng. 8¼-in. to set at 816 ft.
MacKinnie Oil & Drlg. Co. No. 1 Coles, SW SW SE Sec. 1-3n-92w. T.D. 3,045 ft.; landed 6¼-in. on bttm.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW Sec. 31-36s-17w. Drlg. 4,917 ft.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. gr. sh. 6,495 ft.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW Sec. 31-21s-44w. T.D. 5,434 ft.; rdy. to res. with C.T.

Pueblo County

C. E. Puckett No. 1 Barber, NW Sec. 35-21s-66w. Drlg. 810 ft.
Eden O. & G. Co. No. 1 Horse Creek, SW SE Sec. 29-19s-64w. Drlg. 1,880 ft. in wet hole, carrying 6¼-in.; 1,200 ft. W.I.H. from Dakota.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW Sec. 16-1n-91w. Drlg. L. and sh. 3,500 ft.

Routt County

The Steamboat Springs Drilling Syndicate No. 1 Brown, C NW NE Section 1-6n-86w, Steamboat Springs district, was plugged and abandoned at 1,775 feet in red beds. It had a show of gas followed by water in the Frontier, topped at 635 feet; water in the Dakota at 1,085-1,100 feet, and water in the Sundance topped at 1,675 feet.

L. C. Craig and E. L. Moore No. 1-X Erwin, C SW NE Sec. 33-7n-85w. S.D. 165 ft. for winter.
Mid-Colorado Pet. Co. No. 1 Omholt, NE NE SE Sec. 29-4n-87w. S.D. 2,140 ft. for winter.

WYOMING

Big Horn County

Taylor Oil Co. No. 1 Sheets-Govt., SE NE SE Sec. 9-55n-96w. Drlg. 750 ft.
Yale Pet. Co. No. 2 Allen, Lot 52 (approx. SW NW SW Sec. 34-56n-97w). Drlg. 2,700 ft.
Kirk Oil Co. No. 1 Frisby, C SW SE Sec. 11-49n-94w. Drlg. 1,155 ft.
A. L. Rankin No. 1 Karjajla-Rankin, C SW NW Sec. 10-54n-94w. T.D. 590 ft.; P.B. to Embar sd. 555-75 ft. and acid. 500 gals. without results; S.D.O.
Prescott & Mileski No 1 Govt., NE NW SW Sec. 15-1n-93w. Cmtd. 8¼-in. at 1,027 ft.; W.O.C.
Clifford S. Johnson No. 1 Johnson, CEL NW NW Sec. 24-51n-93w. Rig; W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE Sec. 32-55n-97w. T.D. 2,718 ft.; sulfur wtr. in Morrison at 2,695-2,710 ft.; will U.R. 10-in. from 2,555 ft.
John H. Thomas No. 1 Govt., SW SW SE Sec. 3-54n-94w. Drlg. 920 ft.

Campbell County

Fyre & Kreiner No. 2, CSL NW NW Sec. 6-50n-72w. Landed 5 3/16-in. on bttm. at 723 ft. and S.D.

Carbon County

C. D. Cunningham and others No. 1 Union Pacific-Horne, NW SE NE Section 21-22n-78w, a test on the Horne structure, had water in the top of the Sundance at 1,685 feet and was plugged and abandoned at 1,719 feet. The top of the Muddy was at 1,087 feet and the Morrison at 1,307 feet. Elevation is 6,637 feet.

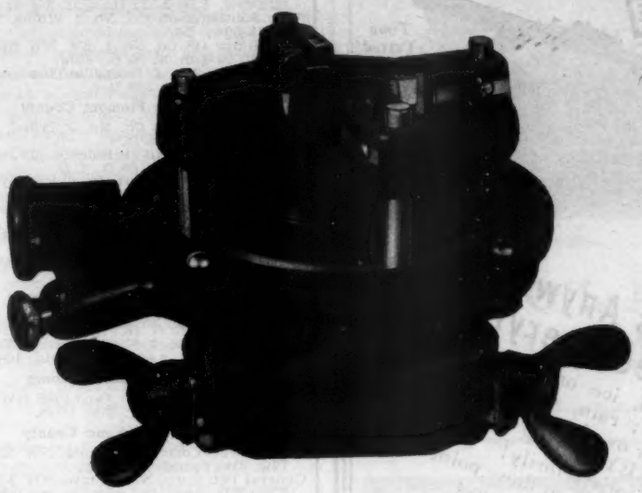
The Ohio Oil Co.-California Co. No. 5-A Kyle, Big Medicine Bow, pumped 4 bbls. per hour from the Sundance at 5,627-49 feet, but may drill a little deeper before completing.

Location was released for their No. 7 Union Pacific-Johnson, CSL NE SW Section 23-21n-79w, which is an outside location on the northwest, a northwest offset to No. 6 Union Pacific-Johnson, a small gas well, and two locations west of No. 3, an oil well.

Ohio Oil Co.-California Co. No. 7 Union Pacific-Johnson, CEL NE SW Sec. 23-21n-79w. M.I.M. (first report).
Sinclair-Wyo. Oil Co. No. 4 Mahoney, CNL NE SW Sec. 34-28n-88w. Drlg. 2,895 ft.; top Sundance 2,510 ft.
Ohio Oil Co. No. 3-A Baker, SW NW SW Sec. 3-23n-79w. T.D. 1,786 ft.; rng. D.P.
Ohio Oil Co.-California Co. No. 5-A Kyle, C NW NE Sec. 26-21n-79w. T.D. 5,649 ft.; tstg.; may D.D.
Producers Oil Co. No. 1 Lake Valley, 200 ft. CNL Sec. 14-20n-88w. T.D. 1,916 ft.; prep. to run 10-in.

Converse County

John Ackard No. 1 Carey, SW NW SW Sec. 19-33n-73w. Drlg. 700 ft.
Chas. Wheeler et al No. 1 Fitzhugh, NW Sec. 19-31n-71w. Drlg. r.b. 200 ft.; 10-in. on bttm.
H. O. Emery et al No. 2 Roberts, C SW SE Sec. 2-31n-70w. Drlg. 254 ft.; S.G.
Jack Decker et al No. 1 Simonson, NW NE SE Sec. 16-32n-68w. S.D. 640 ft. for csg.
Wyshawn Oil Co. No. 2 Lindley, C SW SW Sec. 35-32n-69w. T.D. 2,390 ft.; rmg. 10-in. from 1,760 ft. to bttm.
Fred Bunker No. 1 Pestal, SE NE NE Sec. 32-32n-69w. T.D. 483 ft.; prep. to run csg.
New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW Sec. 25-32n-69w. S.D. 670 ft. without tstg.



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Wyshawn Oil Co. No. 1 Lindley, NW SE SE Sec. 34-32n-69w. T.D. 2,525 ft.; U.R. 8¼-in. for W.S.O.
Wyo.-Southern Oil Co. No. 1 Winda, SW NE NW Sec. 6-31n-69w. Loc.
Blue Ridge Oil Co. No. 1, SW NW SE Sec. 29-32n-69w. Cmtd. 12½-in. at 50 ft.; stdg.
Dr. Harvey No. 1 Granville-Tinnin, NE NE SE Sec. 6-31n-69w. Drlg. 270 ft.

Fremont County

Lincoln Oil & Gas Co. No. 3 Tribal, SW SW SE Sec. 23-1s-1e. Spdg. 35 ft.
Frank Pouppirt No. 1 Fidelity, Tr., SW NE SW Sec. 27-3n-1w. Drlg. 1,168 ft.; C.D.
Tropic Oil Co. No. 1 Govt., C SE SW Sec. 34-27n-90w. S.D. 3,430 ft.
Consolidated Oil Properties No. 3 Ewart, C SW SE Sec. 16-1n-1w. S.D. 1,150 ft.
Ben Stewart No. 1 Darnell, NE SE Sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.
C. E. Nelson No. 8 fee, CWL NE SW Sec. 27-3n-1w. S.D. 1,200 ft.; S.O. 1,095 ft.

Hot Springs County

Freudental et al No. 7 Patd., NE Tr. 51-B, Sec. 21-43n-92w. Drlg. 275 ft. (Kirby Creek district).
Italo Pet. Co. No. 1 Skelton-Govt., SE SW NE Sec. 13-44n-98w. T.D. 1,800 ft.; recmtd. 10-in. 1,750 ft.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW Sec. 23-21n-117w. T.D. 1,090 ft.; U.R. 10-in.

Natrona County

General Pet. Corp. No. 2 State, NW SE NE Sec. 16-35n-77w. Dk. foundations run.
General Pet. Corp. No. 1 State, NW NE SE Sec. 16-35n-77w. T.D. 6,815 ft.; prep. to run 8⅝-in. to top Wall Creek.
Stanolind O. & G. Co. No. 29 Tensleep, C SW NW Sec. 35-40n-79w. T.D. 3,990 ft.; cmtd. 6⅝-in. liner at 3,660-3,984 ft.; perf. and tstg.

Niobrara County

An explosion destroyed the Rocky Mountain Pipe Line Co.'s new pumping station in the Lance Creek field last Friday morning, causing damage estimated at $100,000. The station served the new lines from the field to the Continental Oil Co. refineries at Glenrock and Denver, which were placed in operation November 1. Cause of the fire has not been determined, but is believed to have resulted from an accumulation of gas. Operation of the lines were suspended until a temporary unit could be installed. Three 10,000-bbl. tanks of oil were not damaged.

Location for another important wildcat east of the Lance Creek field was released in F. F. Hintze and others No. 1 Wright-Government, NW NW SE Section 30-36n-63w. Contract has been let to the Robey Drilling Co. of Tulsa. The structure is known locally as the Buck Creek dome. The test will be drilled with rotary tools. Location is approximately 4 miles east of the Continental Oil Co. No. 1 Leach, NE NE Section 29-36-64, in East Lance Creek, which was completed last December for 8,848,000 feet of gas in the Dakota at 3,808-95 feet, after plugging back from 6,434 feet. Little information was given out at the time concerning what was found below the Dakota. The Leach well was 5 miles east of the nearest producer in Lance Creek when drilled. The new location also is approximately 9 miles northwest of the test being drilled on Hat Creek by the Ohio Oil Co. Early in 1937 the Continental Oil Co. acquired through Doctor Hintze permits in an approved unit agreement on the major portion of the S half of Township 36n, Range 64w.

F. F. Hintze et al No. 1 Wright-Govt., NW NW SE Sec. 30-36n-63w. M.I.M. (first report).
Fall River Roy. & Prod. Co. No. 10-B Govt., CNL SE SE Sec. 35-40n-61w. Spdg. 60 ft.
Ohio Oil Co. No. 1 Jones, SE NE SE Sec. 30-35n-62w. Drlg. to Bell sd. at 2,165 ft.; wtr. in Leo zone 1,866-1,945 ft.
J. E. Manning No. 1 Hewitt-Govt., NW SW SW Sec. 4-35n-65w. Loc.
Cow Gulch Oil Co. No. 1 MaGoon, NE NE Sec. 33-35n-64w. S.D. 510 ft. in Morrison; to drl. W.W.
Ohio Oil Co. No. 6 Cash, O.P.C.-2, NW NW NE Sec. 4-35n-65w. Cg. 5,416 ft. in sat. Leo sd.
Fall River Royalty & Producers Co. No. 1 Govt., CSL SE SE Sec. 35-40n-61w. Drlg. 1,796 ft.
H. D. Moore et al No. 1 Bergrem, NW Sec. 23-35n-63w. T.D. 1,769 ft. in Minnelusa; S.O.; rng. packer to S.O.W. and test.
Adams O. & G. Co. No. 1 Baker, NW NE SW Sec. 8-35n-65w. Drlg. 3,106 ft.
Continental Oil Co. No. 2-B Dielman, NE NW NE Sec. 8-35n-65w. Drlg. 5,060 ft.

Park County

Blue Ridge Oil Co. No. 1 Mau, NE NE SW Sec. 25-58n-98w. Loc.
Stanolind O. & G. Co. No. 18 Elk-5, NW NE NW Sec. 30-58n-99w. Drlg. 841 ft.
Resolute Oil Co. No. 2 State, C SW SW Sec. 16-57n-101w. Tstg. at 8,690 ft. after drlg. plug.

Platte County

Bill Griffin et al No. 1, NE SE NE Sec. 18-30n-67w. S.D. 550 ft.

Sublette County

Texas Co.-Frontier Pet. Co. No. 1 Unit, SE SE SW Sec. 1-28n-114w. T.D. 6,247 ft.; rng. Schlumberger test.
Yellowstone Oil Co. No. 1, 200 ft. N of S line of the H. L. Budd ranch, SE SE Sec. 31-13n-112w. S.D. 10 ft.
Progressive Oil Co. No. 1 Haddenham, C NE SE Sec. 21-28n-113w. Drlg. 832 ft.

Sweetwater County

Sinclair-Wyo. Oil Co. No. 81, SW NW NW Sec. 11-26n-90w. Drlg. 120 ft.; 12½-in. at 38 ft.
Sinclair-Wyo. Oil Co. No. 80, NE NE NE Sec. 11-26n-90w. T.D. 1,995 ft.; tstg.

Uinta County

Stove Creek Oil Co. No. 3 Govt., CWL SW NW Sec. 26-14n-119w. Drlg. 50 ft.
Stove Creek Oil Co. No. 1 Govt., NE SW NE Sec. 26-14n-119w. Drlg. 1,700 ft.
Stove Creek Oil Co. No. 2 Govt., C SW NW Sec. 26-14n-119w. S.D. 350 ft.

Washakie County

Paul Boether No. 1 Govt., SW NW Sec. 4-47n-90w. T.D. 1,700 ft.; drlg. plug; W. in first Frontier 1,205-23 ft.
Frison Oil Co. No. 2 Govt., SE SW NE Sec. 24-47n-90w. S.D. 145 ft.

Weston County

One completion in the Osage field in George Keisling No. 1 Guyer, SE SE SW Section 26-46n-64w, will pump 50 bbls. per day from sand at 1,980-88 feet after a shot with 30 quarts. One new location was released.

Krokar et al No. 1, SE SE NW Sec. 31-47n-63w. Drlg. 200 ft. (first report).
James Farrel No. 1 Govt., NE SE SE Sec. 2-44n-61w. Drlg. 74 ft.
Lem Johnston No. 1, C SE SW Sec. 31-44n-62w. Loc.
Selby & Langford No. 1, CNL NW SE Sec. 6-46n-63w. Drlg. 100 ft.
Whedon et al No. 1, Sec. 21-46n-64w. Drlg. below 300 ft.
F. R. Dilger, Tr., No. 16, SW SW NE Sec. 30-46n-63w. T.D. 1,402 ft.; recmtd. csg.
West Osage Oil Co. No. 3, SW SE NE Sec. 15-46n-64w. Hd. tight sd. 2,140-54 ft.; will shoot.
John Borophy No. 1 George, SW SE NW Sec. 26-48n-64w. Drlg. 2,240 ft.

MONTANA

Big Horn County

Buzetti & Corkins No. 1, NE NW Sec. 23-1s-32e. M.I.M.

Blaine County

G. R. Teeters No. 1 Stam, CSL SW SE Sec. 10-31n-18e. (Formerly R. E. O'Keefe). S.D. 860 ft. for csg.; top Eagle 630 ft.

Carbon County

Valentine M. Kirk and associates have released location for an outside well at the north of the Dry Creek field in No. 1 Robinson, SW SW NW Section 2-7s-21e. It is about one-third of a mile northwest of the Ohio Oil Co. No. 2 Souders, which was completed in 1933 for around 1,000 bbls. per day initial at 5,509 feet, and half a mile north of No. 1 Chapman, which was completed in 1930 for 886 bbls. through a Shafer bean. Manning & Martin, Inc., have the contract for the new well.

Valentine M. Kirk et al No. 1 Robinson, SW SW NW Sec. 2-7s-21e. R.U.R. (first report).
Alex Beaton No. 1, CSL SE SE Sec. 23-6s-23e. T.D. 1,580 ft.; rng. 6¼-in.; O.W.D.D.; (formerly East Bridger Oil Co.).
R. C. Tarrant No. 2, SE NW Sec. 4-6s-18e. Drlg. 2,500 ft.
Henderson Prod. Co. No. 1-H-11 Elk, 11, SE SE NW Sec. 35-9s-23e. S.D. 1,810 ft.
Sha-Wha Pet. Co. No. 1 Govt., SW NW NE Sec. 35-9s-23e. S.D. 3,124 ft.
Miracle Oil Co. No. 2 Govt., CWL NE SE Sec. 4-6s-23e. T.D. 2,337 ft. (C.D.); C.O. to res.; will U.R. to bttm. and set csg.

Cascade County

E. B. M. Oil Co. No. 1 Betts, CSL NW SE Sec. 34-18n-4e T.D. 1,250 ft.; prep. to res.

Choteau County

Security Pet. Corp. No. 1 Johnson, C NE Sec. 23-26n-3e. S.D. 1,991 ft.; S.D. for 6⅝-in.; Sunburst 1,935-53 ft.

Dawson County

Frank C. Hughes No. 1 fee, NW NE SE Sec. 5-14n-55w. Drlg. 1,065 ft.

Daniels County

White Tail O. & G. Co. No. 2 Wiley, NW NW NW Sec. 10-36n-50e. Drlg. 1,928 ft.

Fallon County

Montana-Dakota Utilities Co. No. 45, Unit 7, SE NW SW Sec. 25-6n-60e. Drlg. 320 ft.

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW Sec. 7-15n-20e. S.D. 1,080 ft.; (C.D.); in lower Quadrant.
Emmons et al No. 5 Stocker, SW NW SW Sec. 24-22n-18e. Drlg. 950 ft.

Judith Basin County

Fletcher E. Hunt No. 1 Hoven, SE NE NW Sec. 30-14n-15e. Spdg.

Glacier County

Cut Bank had two completions, a gas well and a better-than-average producer. The Glacier Production Co. No. 1 Parker Unit, C N half Section 28-34n-5w. gauged 22,500,000 feet at 2,683 feet, total depth. It had the Sunburst at 2,606-51 feet, with a show of gas at 2,621 feet and 5,500,000 feet at 2,634-38 feet. The Cut Bank was at 2,653-83 feet. The 7-inch at 2,620 feet.

Same company's No. 3 Van Ormer, 440 feet west of C N half Section 17-33n-5w, swabbed 201 bbls. first 10 hours at 2,941 feet. The 7-inch was cemented at 2,905 feet and top of Ellis was at 2,940 feet.

Yukon Oil Co. No. 1 Lungren, SE SE SW Sec. 23-37n-5w. Drlg. 1,510 ft.; 12½-in. at 287 ft.; Colo. 385 ft.
Texas Co. No. 3 Curran, NE NE NW Sec. 8-32n-5w. Drlg. 2,615 ft.
Consolidated Gas Co. No. 1 Tribal, NW NE NW Sec. 18-32n-5w. Drlg. 2,350 ft.
Santa Rita O. & G. Co. No. 3 Lander, C S½ SE Sec. 16-35n-6w. Loc.

Park County

Ben Ryan et al No. 1 Burgess, SE SW NW Sec. 28-2s-11e. Drlg. 1,550 ft.

Petroleum County

H. Clark Rowland No. 1 Brundidge-Mink, SE NW Sec. 35-14n-25e. Skdg. rig from No. 1 Kalispel.
Watson Oil Co. No. 1 Austed, SW NW SE Sec. 22-13n-28e. Drlg. 800 ft.
O. B. Canfield No. 2 Govt., SE NE NE Sec. 21-17-24e. Drlg. 779 ft.

Richland County

W. M. Fulton No. 1 Richardson, SW SW SE Sec. 29-26n-52e. Drlg. 540 ft.; small S.W. at 435 ft.

Teton County

Zodiac Oil Co.-Gulf States Oil Co. No. 1 Kellogg, NE NW NE Sec. 33-28n-5w. Depth not reported.
Gulf States Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW Sec. 5-27n-5w. T.D. 2,525 ft.; drlg. by bit.

Toole County

Kevin-Sunburst had a surprise completion in the Lewistown-Flathead Oil Co. No. 2 Bashor, SE NW SE Section 9-35n-1w, in the northeastern part of the field a mile out from the nearest producer in what was generally believed a barren area. It had the contact at 1,786 feet and was drilled to 1,791 feet. It was pumping 30 bbls. of oil and 30 bbls. of water per day after acidizing with 500 gallons. This is the third well the company has drilled in that district on what is reported to be doodlebug locations.

Mosby Oil Co. No. 1 Pederson, C NE SW Sec. 7-35n-2w. Loc. (first report).
Kluth et al No. 2 Gunderson, SW cor. Sec. 18-35n-2w. Spdg. (first report).
Platt-Bell No. 1 Govt., SW NW NE Sec. 9-34n-2w. S.D. 455 ft.
C. L. Smith, Agt., No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 840 ft.
Big West Oil Co. No. 4 Engle, SW SW SW Sec. 1-35n-3w. T.D. 1,903 ft.; P.B. to 1,636 ft.; shot 30 qts.; C.O.
Aspen O. & R. Co. No. 1 Govt., C NE SE Sec. 25-36n-3w. T.D. 2,050 ft.; U.R. 7-in. for W.S.O.
W. M. Cassidy No. 1 Phoenix, CNL NW NW Sec. 28-35n-4w. S.D. 2,285 ft.
Fulton-Commonwealth No. 2 Thompson, NW NE SW Sec. 28-35n-3w. S.D. 1,630 ft.
H. C. Morton No. 8 Morton, C SW NW Sec. 24-34-2w. S.D. 1,440 ft.; good S.O. after acid.
Chas. Grant et al No. 1 Anderson, SE NE NE Sec. 26-35n-4w. S.D. 2,109 ft.
Colonel Kevin Oil Co. No. 1 Govt., SW NE NE Sec. 27-35n-3w. T.D. 1,693 ft.; test showed no results; will D.D.

Yellowstone County

Signal O. & G. Co. No. 1 Stallinberger, NE NE SW Sec. 18-3n-23e. Cg. 5,129 ft.; 2 ft. sat. at 5,056-58 ft. and 7 ft. at 5,068-75 ft.
Riverton Oil Co. No. 1 Fox, CEL NW NE Sec. 14-2n-23e. T.D. 1,990 ft.; rng. 6¼-in.

UTAH

Grand County

Cane Creek Oil Co. No. 1 Govt., NW SW Sec. 31-26n-21e. T.D. 1,845 ft.; U.R. 8¼-in. from 1,815 ft.
Crescent Eagle Oil Co. No. 1 Brendel, SW SE Sec. 4-22s-19e. Drlg. 4,110 ft.

Summit County

Longwell Pet. Co. No. 1, SE SW SE Sec. 35-3n-5e. T.D. 2,876 ft.; sdtrkg.

California Fields

(Continued from Page 84)

Angeles Basin have been showing an increase in the past few weeks. The O'Dea zone has proven larger in areal extent than expected and consequently a number of new wells are being started around the edge of the structure in the southern part of the field. Development work undertaken up to the present indicates a marked unconformity from the top of the Zins zone down to the bottom of the O'Dea zone and thus some wells thought to be located within the probable productive limits have later been found to have encountered faulting. Superior Oil Co. has just completed its No. 12 Maxwell Community in this field but production has not yet cleaned up sufficiently to make a close gauge. It looks good for about 500 bbls. per day but may go higher as it was still building up at the close of the week. This well was bottomed in the O'Dea zone at 7,679 feet and has an 8⅝-inch water string cemented at 7,615 feet. Republic Petroleum's No. 1 Trust recently deepened from the upper to the O'Dea zone does not seem to have sufficient kick to result in a natural flow and will probably have to be put on the beam. It was bottomed at 7,571 feet but has been plugged back to 7,532 feet. Barnsdall Oil Co. No. 10 Rosecrans, the deepest well drilled in the southern part of the Rosecrans field, tested salt water and will require further work. This well is bottomed at 8,747 feet and was perforated at 8,081-8,345 feet for a production test after the hole had been plugged back to 8,572 feet. It drilled through a fault higher up the hole and may be bottomed east of the Rosecrans fault. East of the productive limits of the Rosecrans field, Western Gulf Oil Co. has reached a depth of 7,350 feet in No. 1 Bagg which is being drilled in the expectation of developing production in the Miocene in a fault trap but still has another several hundred feet to go before reaching the projected depth. H. B. Oil Co. No. 1 Stephens, completed two weeks or so ago flowing from 10 feet of formation open below the shoe of the water string, is holding up in good shape as present production is 630 bbls. of clean 30.6 gravity oil and 700,000 feet of natural gas daily. Royalty Service Corp. No. 2 Gordon, another excellent completion in the southern end of the field, is also holding up in good shape although it has been beaned gradually.

Torrance—Harbor City

Drilling operations in the Lomita section of the Torrance field are showing a gradual slowing up but this is being offset to some extent by increased work in the Harbor City area due south of the Lomita district. Although completions have been rather numerous during the past few months, production has failed to show any appreciable increase. Indicating that additional completions have had very little effect on production, the field's output from 134 wells on October 6 was 14,778 bbls. per day. The following week production averaged 15,532 bbls. from 145 wells and then declined to 15,473 bbls. per day on November 2 from 163 wells. On November 16 field production averaged 15,365 bbls. daily from 174 well and slipped off still further during the following week. Several new wells were started in the Harbor City district this week and at least 12 derricks are either under construction or scheduled to be erected immediately. Production of the Harbor City area has proved similar to that developed in the Lomita section of the Torrance field although the districts are separate entities. An abnormally rapid decline in production is the predominating characteristic of both pools and, whereas Lomita yielded several relatively large flowing wells, the Harbor City district has only yielded one good well and that was D. & B. Oil Co.'s discovery well. Other completions have averaged around 250 bbls. per day.

Coastal Area

Two wildcats were abandoned in the coastal area, Continental Oil Co. stopping work on No. 2 La Laguna at 5,686 feet and General Petroleum Corp. pulling out of No. 1 La Laguna at 3,824 feet. The former well was abandoned at Franciscan basement after the company had determined that the Monterey section was absent. In the Shiells Canyon district of Ventura County, Texas Co. has finished a derrick for No. 136 Shiells in Section 4-3-19, but this rig will not be used until No. 135 has been placed on production. In the Ventura Avenue field British American Oil Co. is making preparations to resume drilling No. 7 Hartman following the landing of surface pipe at 1,840 feet. This well is being drilled in conjunction with Bolsa Chica Oil Co., which holds the lease on the Hartman property. Merchants Petroleum Co. is reaming No. 8 in Section 1-4-20 in the Sespe district of Ventura County and should have this well ready for a production test at an early date. This area is very rough and thus drilling operations are carried out under severe conditions. In the San Miguelito district of Ventura County, Continental Oil Co. is making preparations to spud in No. 10 Grub in Section 24-3-24, but since this well is west of others in the same area it will not shed any additional data on the possibility that this area may be a part of the Ventura Avenue structure instead of a separate accumulation.

Los Angeles Basin

Standard Oil Co. is grading roads preparatory to starting an offset to Tide Water Associated Oil Co. No. 1 Porter in the Aliso Canyon district of Los Angeles Basin where the latter discovered a new oil field a few weeks ago. Union Oil Co. also holds acreage in that section but has not yet made any move to engage in active development. Additional drilling by Union and Tide Water Associated may be postponed until after the first of the new year. Standard's new well in the Aliso Canyon section will be on the Ward property about 660 feet north of Tide Water Associated Oil Co.'s discovery well. Shell Oil Co. has been making good progress on its wildcat in the Del Mar district of Los Angeles Basin but is not yet deep enough to pick up the projected zone. Barnsdall Oil Co. should have its fourth well in the Newhall field ready for a production test soon as No. 4 Rancho San Francisco is coring ahead in the pay at 6,470 feet after a satisfactory water shutoff was secured on the 8⅝-inch string landed at 6,337 feet. Southwest Exploration Co. has finished its first tideland well in the Huntington Beach field but mechanical

(Continued on Page 95)

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Michigan Field Report

By
O. C. PRESSPRICH

22 Oil Wells, Six Dry Holes Completion Record of Week

SAGINAW, Mich., Nov. 28.—Despite weakness of the crude market, Michigan oil fields continued their steady development last week, 22 new producers adding to the daily potentials. The Bloomingdale area of Van Buren County, for weeks the scene of the state's most feverish drilling activity, dominated the new production list with 10 oil wells. Neighboring Allegan County, on the other hand, was absent from new production lists for the first time in many weeks, partly due to curtailment of activity brought about by fear of local crude cuts.

The Clare area continued development in Freeman and Redding Townships although these fields lacked their usual sensational new producers. Five wells were brought into production during the week, while three dry holes—one a gas test in Freeman—gave indications of a dip in oil-bearing formations rather than establishing boundary markers of the field.

The Midland-Edenville pool, dormant for several weeks as far as new production is concerned, broke into pay with two favorable producers. Three Gladwin County fields, Bentley, Buckeye and Hay, added one new well each to show the most activity Gladwin fields have experienced in many weeks. Two Ogemaw fields were likewise present with new production. Van Buren County, where the Bloomingdale field has dominated new production recently with more tests drilling than anywhere else in Michigan, had nine producers and one dry hole in Bloomingdale, while a wildcat in Columbia Township, one township west of Bloomingdale, gave indications of western extension of the field. All Van Buren production is from the shallow Traverse sand.

None of Allegan County's recently active fields, Overisel, Heath, Salem and Monterey, figured in new production, but Hopkins and Lee townships showed dry wildcats in attempts to prove up new territory.

Allegan County

Hopkins Township (3n-12w)—A wildcat attempt at Varner & Chulski No. 1 Vanderkolk, NE NE SE Section 21, failed and will be abandoned. It was an attempt to extend proved territory one township south of Dorr.

Lee Township (1n-15w)—Efforts to locate a production vein southwest of Heath Township failed at Rex Oil & Gas Co. No. 1 Nelson, SE SE SW Section 36.

Clare County

Freeman Township (18n-6w)—Two oil wells and two dry holes, one of them a gas test, summarized operations in this focal spot. Pure Oil Co. No. 1-A Van Horn, NE NW SW Section 3, was an 800-bbl. natural producer. C. W. Teater No. 2 Van Horn, NW SW NE Section 3, flowed about 150 bbls. through swab agitation in 40 hours and was scheduled to be acidized. The Teater well is reported 20 feet lower than any other producer in the field, but operators believed the hole was crooked and the oil formation not as low as indicated. Daily Crude Oil Co. No. 1 Beck, NW SW NE Section 10, an attempt to extend the proved area south from Section 3 development, failed when water entered the hole. Taggart Brothers No. 1 Buell, C SW half Section 5, about 2 miles west of discovery, a gas test, was abandoned.

Redding Township (19n-6w)—Three oil wells, none of which rivals recent prolific wells in the field, and one dry hole, were listed as completions in Redding. Pure Oil Co. No. 1 F. Switzer, N half SW SW Section 27, led new production with a gauge of 1,800 bbls. daily natural flow. Pure Oil Co. No. 1-B Bicknell, S half SE SE Section 28, was rated at 450 bbls. naturally, and Gulf Refining Co. No. 3 Arthur, SE SE SW Section 34, flowed 350 bbls. naturally. Acid treatment was scheduled. Gulf No. 4 Hall-Arthur, the first Michigan well to use a rotary drill as deep as the Monroe formation, was ready to be drilled in this week. The one dry hole was Daily Crude Oil Co. No. 3 Van Horn, NE SW SW Section 34.

Gladwin County

Bentley Township (17n-2e)—A small acidized producer, rating 15 bbls. daily, was brought in at Turner Petroleum Co. No. 3-E State, SW NE NE Section 29.

Buckeye Township (18n-1w)—National Oil Products No. 3 Campbell, NW NW SE Section 3, a northeast development in the North (Wicklund) pool, was this sector's first completion in weeks. The well rated 150 bbls. after acid.

Hay Township (18n-1e)—J. J. Morehouse No. 1 Loyengood, SW SW NW Section 16, acidized a small natural showing to 40 bbls. daily for the first completion in weeks in Buckeye's eastern neighbor township.

Midland County

Edenville Township (16n-1w)—Interest in this oil sector revived last week after long inactivity. Two favorable producers were brought in at interior locations near discovery. Both were Sun Oil Co. projects. No. 14-B State-Edenville, SW NW SE Section 27, was gauged at 325 bbls. natural flow, and the No. 15-B, NW SW SE Section 27, rated 250 bbls. daily after acid treatment.

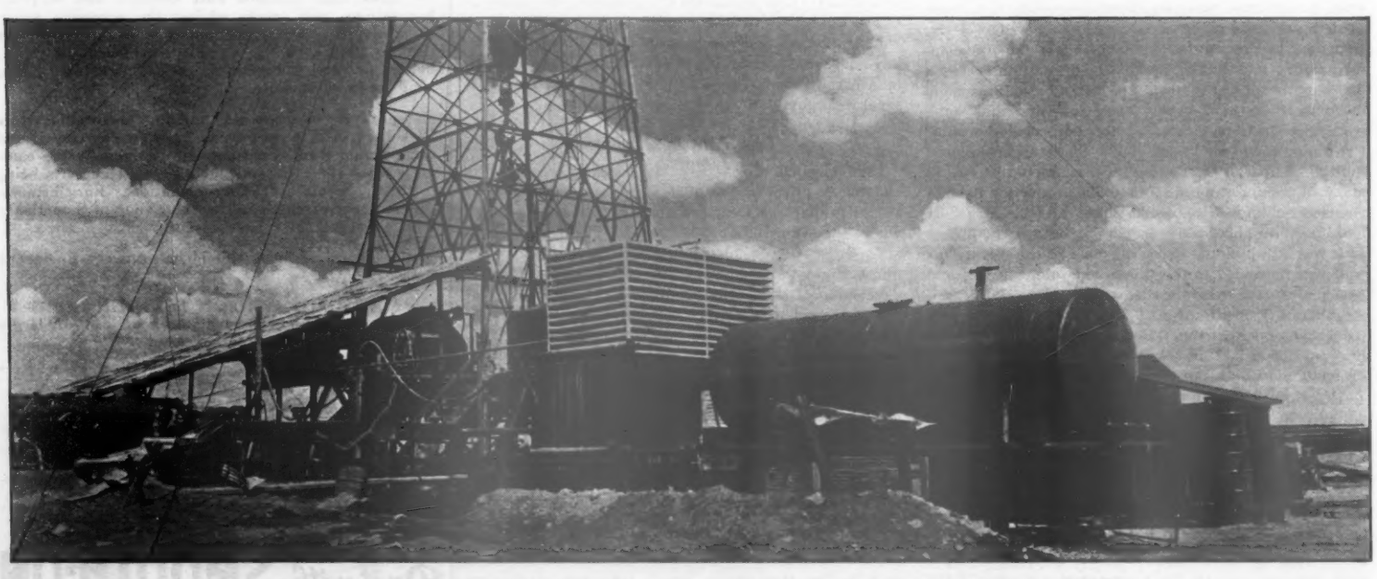
Ogemaw County

Ogemaw Township (22n-1e)—A small producer was drilled in at M. Ingold No. 4 Zettle, NE SW SW Section 13, rated at 25 bbls. daily after treatment.

Van Buren County

Bloomingdale Township (1s-14w)—With more than 60 active drilling wells this boom spot continued to dominate new Michigan production. Nine producers ranging from 12 to 1,000 bbls. daily added more than 3,000 bbls. to daily potentials. One dry hole showed as a completion. Bridger Basin Oil Co. No. 2 Cominski, NW SE NE Section 17, rated the highest gauge, estimated at 1,000 bbls. daily natural flow. Other completions and their production were: W. R. Borough No. 2 Wait, NW NE NE Section 17, at 250 bbls. natural; Fisher & McCall No. 1 Church, SW SW NW Section 16, at 200 bbls. after acid; J. E. Flanigan No. 1 Sarossy, SE SW NE Section 17, at 75 bbls. after acid; C. C. Goff No. 1 Maier, SW NW NE Section 14, at 300 bbls. acidized; D. F. Jones No. 1 Meldin, SW NE NE

(Continued on Page 92)



Diesel-operated rig drilling in the Vacuum field, New Mexico

North and East Texas

By D. H. STORMONT

Curtailment by Pipe Lines in K. M. A. Field May be Lifted

WICHITA FALLS, Tex., Nov. 28.—The K.M.A. pool centered considerable attention as a possibility was seen for the lifting of pipe line proration, which has been effective since March. Texas Co. announced plans to increase its runs from 80 per cent to 100 per cent of the well allowables if other major carriers agree to take over part of the Texas Co.'s connections.

The Texas Pipe Line Co. is at present tied into over 500 wells, and the other companies must take over 125 wells before the agreement is effective. Several of the major carriers have already agreed to the plan. Allowable under pipe line proration gives each well between 18 and 20 bbls. per day. Commission allowable in the pool for November is 32 bbls., not tallowing for Saturday and Sunday shutdowns, which cut the average allowable to around 23 bbls. per day.

During the week the pool had nine new wells completed with an aggregate initial potential of 8,057 bbls. Nine locations were abandoned, leaving a total of 17 locations. Four derricks are up and there are 17 drilling wells in the field. Thirteen wells are in the testing stages and seven are waiting on final gauge, making a total of 58 operations in the field.

Possible extension of K.M.A. 1½ miles to the east was seen when John L. Swanner No. 1 Williams, Block 5, J. McCool Survey, drilled saturated lime at 3,974-94 feet. Casing has been set for a test.

Hull-Silk Pool Extended

Archer County's Hull-Silk pool was given a mile northwest extension when Thurman Oil Co. No. 2 L. F. Wilson, E. Hall Survey, flowed 106 bbls. of oil in three hours through open 2-inch tubing to give the pool its largest producer from any of the three pay levels. The well is in a 3,800-foot locality but is producing from the 4,300-foot level and is a mile extension for that horizon. It is producing from sand from 4,234-50 feet. The well is expected to be completed without being shot. This well opens a large territory for the exploration of the 4,300-foot sand.

In the Holliday Canyon sand pool of southern Wichita and northern Archer County, a new producer was completed and another outpost well is expected to make a producer. Shappell Oil Co. No. 51 J. L. Jackson, in the northwest corner of Section 23, Block 4, Denton C.S.L. Survey, in Wichita County, started flowing through casing when plug was drilled. The west offset to the south extension well, N. H. Martin & Son No. 1 J. Stehlik, Section 6, Block 3, Denton C.S.L. Survey, began flowing after it had been shut in preparatory to making a pumping test. The well made a 50-bbl. head in three minutes and the owners were planning to take a three-hour gauge.

NORTH TEXAS COMPLETIONS

(24-hour production)

Archer County

Blackwell Oil & Gas Co. No. 1 C. H. Thuman, 958-81 feet, 144 bbls; No. 2 C. H. Thuman, 1,000 feet, dry. L. T. Burns No. 16 L. F. Wilson A, 1,396-1,406 feet, 25 bbls. Hamilton Petroleum Co. No. 3 A. J. Ikard B, 1,138-48 feet, 15 bbls. C. A. Johnston No. 1 Gus Symank, 1,467 feet, dry. W. B. Omohundro No. 6 C. H. Thuman, 1,244 feet, dry; No. 7 C. H. Thuman, abandoned location. Reno Oil Co. No. 1 L. F. Wilson D, 3,758-94 feet, 100 bbls. Underwood and others No. 32 R. Campbell B, 940-50 feet, 25 bbls.

Jack County

Benoil Co. No. 1 E. T. Epperson, 3,270-3,300 feet, 307 bbls.

Clay County

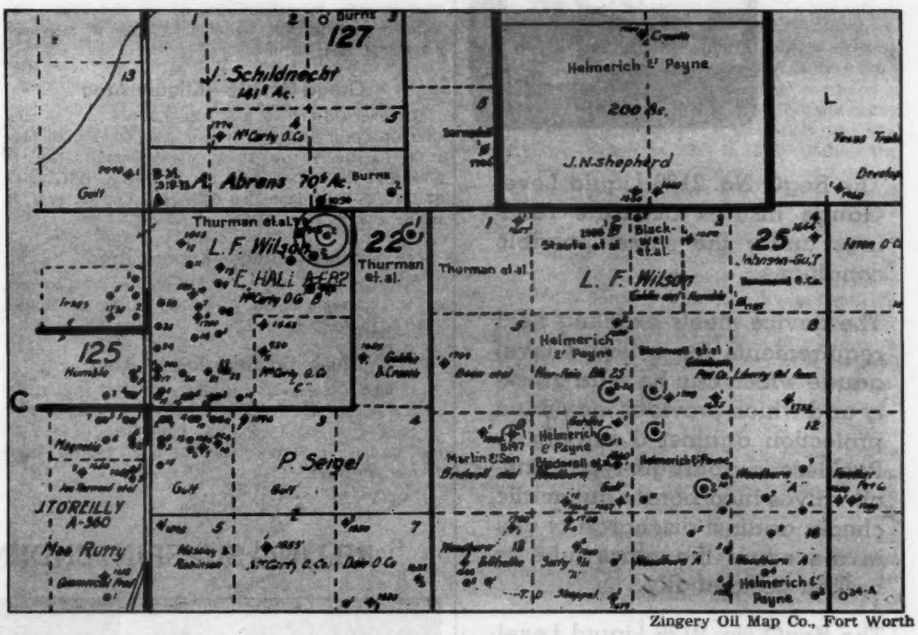
H. Bowers No. 5 C. J. Shumake, 1,130-65 feet, 140 bbls. Bridwell Oil Co. No. 17 T. C. Thornberry, 1,088-1,179 feet, 175 bbls. Duncan and others No. 2 Duncan, 1,152-79 feet, 175 bbls. W. H. Metzner No. 1 C. T. Taylor, 1,451 feet, dry.

Cooke County

Sussex Oil Corp. No. 1 W. R. Cannon, 1,828 feet, dry. Temples and others No. 1 W. A. Erwin, 991 feet, dry. Texas Co. No. 15 T. Truebenbach, 702 feet, junked; No. 15-A Tony Truebenbach, 739-75 feet, 100 bbls.

Wichita County

Bridges and others No. 1 Warren, 517-26 feet, 5 bbls. C. A. Reed and others No. 1 Mrs. O. F. Bailey, 592 feet, dry. Board of Mineral Development Co. No. 16 State of Texas, 3,712-97 feet, 640 bbls. Bridwell Oil Co. No. 7 Waggoner Brothers, 3,815-87 feet, 1,059 bbls. Burk Royalty Co. No. 6 Sue Mitchell, 3,870-3,904 feet, 728 bbls. L. T. Burns No. 20 Sue Mitchell, 3,812-61 feet, 750 bbls. Consolidated Oil Co. No. 14 Ferguson W P, 2,708-3,810 feet, 1,900 bbls.



Zingery Oil Map Co., Fort Worth

The 4,300-foot horizon of the Hull-Silk pool of northern Archer County was given a mile northwest extension by a well which is the largest in the field for any of the three producing levels

Colding & Cochran No. 5 D. R. Preston, 3,937-86 feet, 680 bbls. W. H. Hammon No. 18 S. H. McCarty A, abandoned location; No. 9 S. H. McCarty K, abandoned location; No. 11 S. H. McCarty L, abandoned location.

Hammon and Hanlon-Buchanan No. 16 and 17 Fassett & Tuttle, abandoned location. H. B. Hill No. 1 Bishop, abandoned location. King Oil and Perkins Cullum No. 8 Charles Pettit, 3,697-3,800 feet, 1,000 bbls. Magnolia Petroleum Co. No. 2 R. L. Kempner, abandoned location. McCutchin Drilling Co. No. 2 Waggoner Brothers, 3,790-3,918 feet, 600 bbls. D. W. Power and others No. 4 D. E. Hooks, abandoned location. George Proctor No. 1 Ed Foster B, 875 feet, dry. Shell Petroleum Corp. No. 3 N. C. Griffin, 3,862-3,994 feet, 700 bbls; No. 5 N. C. Griffin, abandoned location. Staley Oil Co. No. 1 L. C. Denny, abandoned location. Sunray No. 11 Mrs. Anna Mangold, abandoned location.

Young County

P. Atchley No. 11 Benson, 963 feet, dry. C. J. Bohner No. 1 J. P. Logan, 590 feet, dry. H. Craig No. 2 H. Hennig, 1,095 feet, dry. Dean Brothers and others No. 1 J. W. Collier, 605 feet, dry. H. L. Peterman No. 1 W. E. Foster, 988 feet, dry. A. T. Strong No. 2 Morrison Heirs, 3,826-3,934 feet, 1,300 bbls. W. S. Taylor No. 2 W. W. Farmer, 805 feet, dry. Barrett & Reynolds No. 1 W. W. Goode, 2,230 feet, dry. Collier & Conner No. 2 B. F. Scott, abandoned location. Homestead Oil & Gas Co. No. 1 G. B. Moseley, 3,792-3,828 feet, 400 bbls. Mid-Continent Petroleum Co. No. 11 R. D. Owen B, 2,392-2,420 feet, 60 bbls.

EASTERN TEXAS

DALLAS, Tex., Nov. 28.—Henderson County centered most of the activity in East Texas over the week as the twelfth producer was completed in the Flag Lake pool, and two other tests in the county attracted considerable attention. Lyman Davis completed No. 1 J. P. Tarkington, northeast offset to a Texas Co. well. The Davis well made 195 bbls. of fluid daily, of which 30 per cent was salt water. The field has one test drilling, Texas Co. No. 3 Nolan, which at last report was in the Austin chalk below 2,600 feet. Richards & Holloway have yet to start their No. 1-B Tarkington, north of their first producer on the lease.

Also in Henderson County but in the Opelika area, Tide Water-Seaboard-Humble No. 1 S. S. McGee, in the R. Acosta Survey, the third well drilled on the deep Opelika structure, is below 4,960 feet in sand and shale. *(Continued on next page)*

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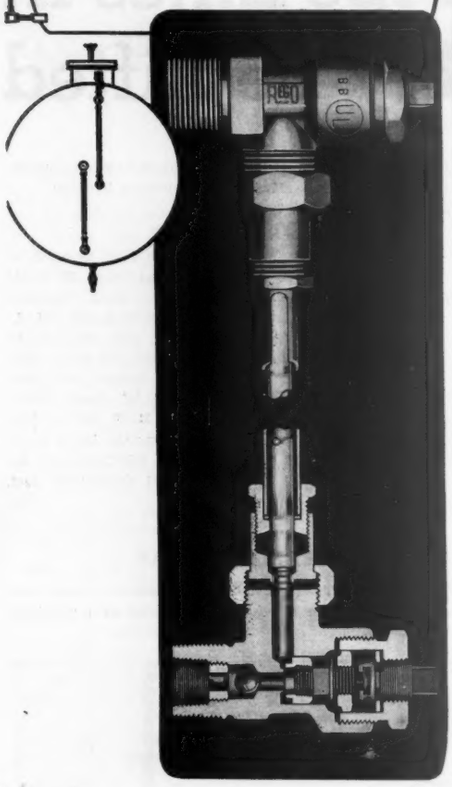

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A new Henderson County wildcat was started when J. V. Scrivenor and associates began moving in materials to a location in the Stockard community, 6 miles northwest of Athens. The well will be No. 1 William Richardson Estate, and is on a 160-acre tract in the Holland Survey. Production will be south from the Woodbine sand area.

Possibility of production for a wildcat in northern Houston County was seen as John G. Mayo No. 1 E. C. Lively, 4 miles northeast of Grapeland, found a showing of oil in the Woodbine sand topped at 5,885 feet. Operators cored 5 feet into the section and suspended operations to decide whether to test or core deeper. Location is in the S. Rogers Survey and about midway between the Grapeland gas area and the one-well Percilla area.

Cherokee County received a new wildcat when J. R. Bunn staked No. 1 S. W. Lang, Levi Jordan Survey, about 7 miles southwest of the town of Rusk.

First of two wildcats to be drilled by Taubert & McKee in Trinity County, has been staked as their No. 1 First National Bank of Overton. The location is 5 miles northwest of Apple Springs, on acreage farmed cut by the Humble Oil & Refining Co. Contract depth is 2,000 feet.

Three tests were abandoned in East Central Texas, one in Freestone County and the other two in Red River County. In the Evans Lake area of east Freestone County, Collins & Stewart quit No. 1 Hill at 5,285 feet after finding no shows to that depth. The two Red River County abandonments were Daniels and others No. 1 Gaston, 2 miles south of Detroit at 1,109 feet and Whitehead and others No. 1 Ringwald, 1 mile northwest of Manchester, at 630 feet.

EAST TEXAS FIELD COMPLETIONS
(One-hour production)

Gregg County—Longview Area

Shell Petroleum Corp. No. 21 J. W. Akin, 3,578-3,650 feet, 66 bbls.; No. 30 W. T. Burnside, 3,504-3,613 feet, 50 bbls. Sinclair Prairie Oil Co. No. 24-B J. W. Akin, 3,534-3,650 feet, 90 bbls.; No. 61 M. Moncrief, 3,527-3,641 feet, 60 bbls.

Gregg County—Kilgore Area

Degener Oil Co. No. 2 S. Bell, 3,529-44 feet, 35 bbls. Gulf Oil Corp. No. 48 C. Brown, 3,546-50 feet, 65 bbls. C. V. Landsberry No. 10 A. Money, 3,612-13 feet, 60 bbls. Overton Refining Co. No. 39 I.&G.N. R.R., 3,547-57 feet, 25 bbls. Stanolind Oil & Gas Co. No. 12 J. R. Beall, 3,659-61 feet, 32 bbls.

Rusk County—Kilgore Area

Bay Oil Corp. No. 15 W. P. Moore, 3,735-40 feet, 60 bbls. Devonian Oil Corp. No. 47 R. A. Motley, 3,699-3,710 feet, 56 bbls.

Rusk County—Joiner Area

Humble Oil & Refining Co. No. 16 E. S. Holt, 3,785-3,801 feet, 40 bbls.; No. 13 M. Wooster, 3,712-36 feet, 60 bbls. Ohio Oil Co. No. 27 Clay Heirs, 3,591-3,691 feet, 20 bbls. Okla-Tex Trust No. 5 R. T. Neal, 3,762-74 feet, 40 bbls.

Upshur County—Longview Area

Gilcrease Oil Co. No. 10 J. W. Free, 3,586-3,609 feet, 44 bbls. Humble Oil & Refining Co. No. 47 J. K. Edwards, 3,625-87 feet, 45 bbls.

EAST CENTRAL TEXAS COMPLETIONS
(24-hour tests)

Falls County: Kincaid Production Co. No. 1 Davis, dry and abandoned at 914 feet.

Freestone County: Champlin-Bass & Pickens No. 1 E. P. Harwell, 4,005-16 feet, 191 bbls. J. L. Collins No. 1 F. E. Hill, dry and abandoned at 5,285 feet.

Henderson County: L. T. Davis No. 1 Tarkington, 3,020-23 feet, 195 bbls.

McLennan County: L. Steele No. 1 Cherry, dry and abandoned at 1,300 feet.

Red River County: Daniels No. 1 Gaston, dry and abandoned at 1,109 feet. C. E. Whitehead No. 1 Ringwald, dry and abandoned at 630 feet.

Van Zandt County: Van Zandt Syndicate No. 4 C. S. Coker, dry and abandoned at 1,285 feet.

Michigan Fields

(Continued from Page 90)

Section 17, at 150 bbls., natural; J. E. Riley No. 1 Harrison, SW SW NW Section 16, at 300 bbls. acidized; J. V. Wicklund No. 1 Hammon, NE NW SE Section 17, at 12 bbls. after acid; J. V. Wicklund No. 1 Loughlin, SE SE NE Section 17, at 800 bbls. acidized. The one dry hole was at Rex & Gordon No. 2 Bunge, SW NE NW Section 16.

Columbia Township (1s-15w)—Extension of production one township west of Bloomingdale's fast growing field appeared probable last week with a successful wildcat at W. E. Ross No. 1 Landrus, NW SW NW Section 11, rated at 150 bbls. daily after acid. This was the only active test in Columbia, but operators indicated further exploration would begin soon.

Southwestern Exploration Planned

Major oil interests are reported laying plans for big-scale exploration of Michigan's southwest corner in the expectation of developing information to guide them in possible widespread drilling over an area including Allegan, Barry, Van Buren, Kalamazoo, Berrien, Cass and St. Joseph counties.

State Land Sale

Oil and gas leases on more than 11,000 acres of state-owned lands in Clare, Gladwin, Midland, Roscommon and Ogemaw counties are to be offered at auction December 2 by the state Conservation Department. The list includes 310 acres of proved lands in Gladwin County, 80 proved acres in Midland County and 40 in Clare County.

Wildcat lands to be offered include: Midland County—Edenville Township, 2,540; Larkin, 479; Lincoln, 401; Warren, 361; Jerome, 80. Clare County — Frost Township, 844; Greenwood, 743; Surrey, 562; Lincoln, 448; Hatton, 280; Garfield, 210; Arthur, 160. Ogemaw County—Edward Township, 360; Horton, 160. Roscommon County—Roscommon Township, 3,603.

DRILLING SUPERINTENDENT ADDRESSES ENGINEERS

Lief Olson (standing), spoke before the Petroleum Engineers, University of Oklahoma, on the subject of controlling a large gas well in the Cement field. Seated at the left end of the front row are: Chester Naramore, executive secretary, Petroleum Division, A.I.M.E.; Dean W. H. Corson, Engineering College, University of Oklahoma; K. A. Covell, production engineer, Pure Oil Co.

West, Central and Panhandle Texas

By
D. H. STORMONT

Gaines, Hockley and Ward Areas Lead Week's Results

FORT WORTH, Tex., Nov. 28.—Gaines and Hockley counties centered attention in the North basin area while an increase in activity in Ward County highlighted the South basin's developments over the past week.

The Seminole pool in Gaines County, which has been rather inactive for the last few months, is now the scene of considerable activity. A new producer on the north edge of the pool was assured when Magnolia Petroleum Co. and Atlantic Refining Co. No. 1 Havemyer & Jenny flowed 127 bbls. of oil in 12 hours through a 1-inch choke, with gas production at the rate of 5,000,000 feet per day. The well is in Section 219, Block G, W. T. Survey. It produces from soft porous lime from 5,033 feet to 5,072 feet, total depth.

Expansion of production in the pool to the west will be sought in an outpost staked by Amerada Petroleum Corp. Location is on the T. S. Riley lands, in the southeast part of Section 229, about a quarter of a mile west of production.

Three and a half miles north of the Seminole pool Adams & Bradley No. 1 Crain, Section 216, Block G, W. T. Survey, is shut down for orders at 3,353 feet. Yates sand was topped at 3,280 feet but it was found dry and the operators are undecided whether or not to carry the test deeper.

Three miles west of the Slaughter pool in Hockley County, Gulf Oil Corp. No. 2 Mallett, is flowing about 20-minute heads of 25 bbls. of oil each. The well was drilled in with oil and has been treated with acid twice. Pay was found at 4,981-5,056 feet.

In Yoakum County and 1 mile southeast of the Bennett pool, Shell Petroleum Corp. No. 1 Ruyts, Section 743, is swabbing at the rate of 3 bbls. of fluid per hour for 12 hours, of which 25 per cent was water. Test is bottomed at 5,266 feet where it was given a 500-gallon acid treatment.

Central and South Basin

The general increase of activity over the past few weeks in Ward County was further stimulated when two outpost locations were announced in the Payton pool. Roeser & Pendleton staked No. 1 M. L. Johnson, Section 9-32, H.&T.C. Survey, about a quarter mile northwest of production. The well is on an 80-acre lease, cornering on the northwest Ohio Oil Co.'s producing lease. A quarter of a mile north of the pool, Robert E. Mitchell staked a location in Section 7-32, H.&T.C. Survey, about 2,052 feet from the river.

The Foster pool of Ector County gained a half-mile northeast extension when M.B.K. Drilling Co. completed No. 2-C Foster for 1,275 bbls. of oil per day. Pay was topped at 4,196 feet and a 390-quart shot was given at 4,275 feet.

In Crane County, the University pool is assured a half-mile northwest extension by the Standard Oil Co. of Texas No. 1-6 University. Located in Section 6, Block 30, University land, the well found oil sand at 3,155-65 feet, with broken sands while drilling to a total depth of 3,270 feet. Operators are preparing to shoot the pay section as 1,500 feet of oil stands in the hole.

Discouraging possibilities of extending Winkler County's Keystone pool a mile to the northeast, Sid Richardson No. 1-A Bashara, Section 22, Block 77, P.S.L. Survey, got a full hole of sulfur water in drilling from 4,012 feet to 4,019 feet. The well had indicated production from favorable showings at 3,343-50 feet. It is now preparing to plug back and test the upper horizons.

Two wildcat tests were staked in the southern basin, one each in Pecos and Andrews counties. New test for northern Pecos County was the George Abell and others No. 1 Baldwin-State, Section 24, Lot 1, Block 9, H.&G.N. Survey, about a mile and a half north of the Magnolia Petroleum Co.'s recent deep Ordovician failure, No. 1-A Tex-Mex-McKee.

In Andrews County, Anderson-Prichard Oil Corp. and Osage Drilling Co. have staked a location on farm-out acreage from the Humble Oil & Refining Co. in Section 13. Block 14, University land, about a mile and a half west of the Gulf Oil Corp. No. 1-G State failure.

WEST CENTRAL TEXAS

Possibility of a Ranger lime pay in an old Coleman County pool, the staking of two wildcat tests in Parker County, and general activity in Haskell County centered attention in the West Central Texas area.

Ranger lime pay for the old Echo pool of Coleman County seemed assured when Brannon & Murray No. 1 Dibrell, J. W. Hitt Survey, about 9 miles northeast of Coleman, topped the lime pay at 3,167 feet and drilled to a total depth of 3,282 feet in saturation. The pool has been producing since 1927 from the shallow Fry sand at about 1,900 feet. The well is still testing although it is reported to have flowed 137 bbls. of oil in 24 hours.

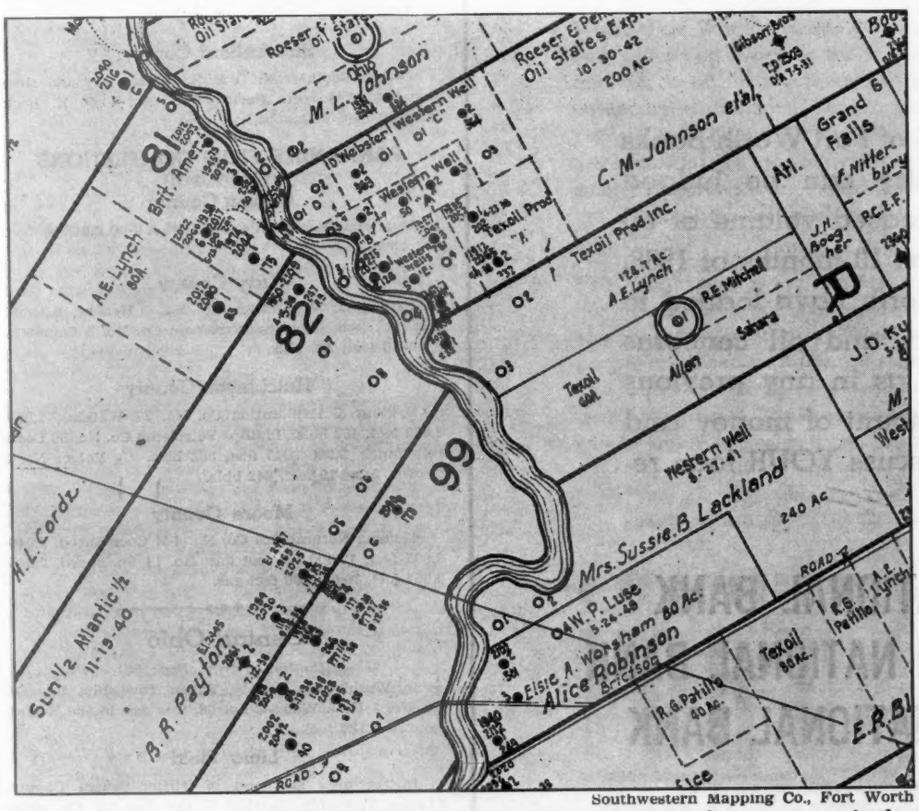
Parker County's prospective wildcats include a shallow test and a 4,000-foot Ellenburger test. The deep well will be W. R. Shankle and R. Carl Larkins No. 1 Brown & Gardner on the Ella Gilbert farm. The test was drilled 2,085 feet last year and the new operators plan to deepen it to 4,000 feet. In northeastern Parker County, near Springtown, E. Lynwood Ford and others have spudded in a shallow wildcat in the J. W. Culwell farm of the G. W. Duncan Survey.

Young County received a new wildcat when Bryson Oil & Gas Co. erected derrick for No. 1 Nall, Section 1997, T.E.&L. Survey. It will be a 4,200-foot test and is about 1 mile west of the town of Loving.

In Haskell County, Roeser & Pendleton's deep well in Section 19, Wise County School lands, which has been in the testing stage for several weeks, is shut down for orders at a total depth of 4,700 feet after finding only slight oil showings. Haskell County's Pardue area will receive a new test next week to be drilled by Forest Development Corp. in the north half of the M. Collum Survey, testing the pool's 2,200-foot horizon. The same company's No. 3 Pardue, on the east side of the field, missed the 2,200-foot pay and is drilling at 4,875 feet seeking further production.

Shallow oil production in northeast Hood County was indicated in a wildcat, Prince & Miller No. 1 Andrews, 3½ miles east of Branbury. Oil sand was found at 482 feet and penetrated only 1 foot. Operations were shut down preparatory to a test.

Spudding was scheduled the first of this week at Foard County's new wildcat on the Ferguson lands in Section 456, H.&T.C. Survey, 1½ miles west of Foard City. The well will be drilled by Kaufman & Fleetwood who have assembled a 3,500-acre block.



Southwestern Mapping Co., Fort Worth

The Payton pool of western Ward County was given two quarter-mile outposts to further stimulate activity throughout the county

WEST TEXAS COMPLETIONS
(24-hour tests)

Andrews County

Humble Oil & Refining Co. No. 51 J. S. Means,

4,390-4,512 feet, 835 bbls. Monticelo Oil No. 3 E. Cowden, 4,120-4,224 feet, 130 bbls.

Crane County

Humble Oil & Refining Co. No. 21 Tubbs, 4,250-4,440 feet, 779 bbls.

Ector County

Blackstock Oil No. 4 T.&P., abandoned location. M.B.K. Drilling Co. No. 2-C H. C. Foster, 4,196-4,275 feet, 1,275 bbls. Shell Petroleum Corp. No. 1-B J. E. Witcher, 4,080-4,220 feet, 1,016 bbls. Texas Co. No. 24 Connell, 3,430-3,650 feet, 166 bbls.

Howard County

Magnolia Petroleum Co. No. 5 M. H. O'Daniel, 2,612-2,800 feet, 144 bbls. Merrich & Lamb, temporarily abandoned location. Moore Brothers No. 5-A O'Daniel, 2,625-2,830 feet, 782 bbls. Murko Oil & Royalty No. 6-A Chalk, 2,703-2,920 feet, 1,463 bbls.

Scurry County

P. J. Moran No. 1 Hardee, temporarily abandoned.

Upton County

Cardinal Oil No. 18 Wooley, dry and abandoned at 2,186 feet. Gulf Oil Corp. No. 35 Crier-McElroy, 2,660-2,888 feet, 4,426 bbls.

Ward County

Gulf Oil Corp. No. 109 Estes, 2,511-2,668 feet, 2,076 bbls.; No. 115 Hutchins, 2,578-2,760 feet, 376 bbls. E. C. Heidrich No. 2 Bertner, 1,796-1,847 feet, 510 bbls. Humble Oil & Refining Co. No. 17 University, 2,528-2,740 feet, 553 bbls. Luse & Ice No. 1 J. O. Brictson, 1,940-2,112 feet, 249 bbls. McMann & Garrett No. 1 R. Avery, dry and abandoned at 2,295 feet.

Winkler County

Magnolia Petroleum Co. No. 196 Walton, 2,830-87 feet, 1,628 bbls.; No. 197 Walton, 2,830-2,940 feet, 2,136 bbls.; No. 18 State-Walton, 3,150-3,253 feet, 503 bbls. Sid Richardson No. 4 Continental-Jenkins, 3,321-65 feet, 350 bbls.

Yoakum County

J. W. Murchison No. 4 Willard, 4,798-5,139 feet, 259 bbls. Ohio Oil Co. No. 2 Fairman, 4,972-5,160 feet, 425 bbls. Texas Co. No. 2 H. O. Wooten, 4,928-5,050 feet, 365 bbls. S. C. Yingling No. 1 Nettie Barrier, dry and abandoned at 5,501 feet.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Brown County

Ed Selvidge No. 1-A fee, dry and abandoned at 1,262 feet.

Callahan County

Warren-Kleener No. 1 Dr. F. E. Clark, 737-40 feet, 24 bbls.

Comanche County

E. T. DeArmon No. 1 Lee Underwood, 2,615-35 feet, 40 bbls. R. C. McCarter No. 1 A. T. Shultz, dry and abandoned at 608 feet; No. 2 A. T. Shultz, dry and abandoned at 600 feet.; No. 1 T. A. West, dry and abandoned at 765 feet. Whiteside Brothers No. 1 A. K. Anderson, 583-94 feet, 6 bbls.

Fisher County

Montour Production Co. No. 2 W. L. Barker, 3,539-43 feet, 411 bbls.

Jones County

Healey & Walters No. 5 W. H. Daughtry, 1,897-1,913 feet, 310 bbls. Humble Oil & Refining Co. No. 1 Sam Lewis, dry and abandoned at 2,695 feet. Sandy Ridge Oil Co. No. 3 W. L. Steffens, 1,867-87 feet, 320 bbls. Ungren & Frazier No. 1 Griffin, 3,247-53 feet, 543 bbls.

Palo Pinto County

A. C. Drilling Co. No. 1 Bessie Holt, dry and abandoned at 4,230 feet. Goble-Moore Drilling Co. No. 1 M. B. Costello, dry and abandoned at 2,550 feet.

Parker County

Bartrug & Burns No. 1 Lem Lampkin, dry and abandoned at 704 feet.

Runnels County

H. A. McLean No. 1 E. Pfluger, dry and abandoned at 2,057 feet.

Shackelford County

Dickey Brothers No. 1 B. S. Walker, dry and abandoned at 544 feet. Fortson-Polk No. 1 O. E. Beck, 3,220-32 feet, 100 bbls.

PANHANDLE FIELD COMPLETIONS

(24-hour tests)

Carson County

Magnolia Petroleum Co. No. 45-A fee, 2,913-50 feet, 297 bbls.

Gray County

Drilling & Exploration Co. No. 4 Henery, 3,246-87 feet, 261 bbls. Phillips Petroleum Co. No. 3 Saunders, 2,909-50 feet, 229 bbls.

Hutchinson County

Drilling & Exploration Co. No. 27 Watkins, 2,983-3,030 feet, 452 bbls. Phillips Petroleum Co. No. 36 Cockrell Ranch, 2,980-3,045 feet, 362 bbls. Cy Reiger No. 3 Groves, 3,140-79 feet, 642 bbls.

Moore County

Texoma Natural Gas Co. No. 4-M Coon-Sneed, 2,640-2,865 feet, 17,400,000 feet gas; No. 14 Sn. Sneed, 2,425-3,054 feet, 70,628,000 feet gas.

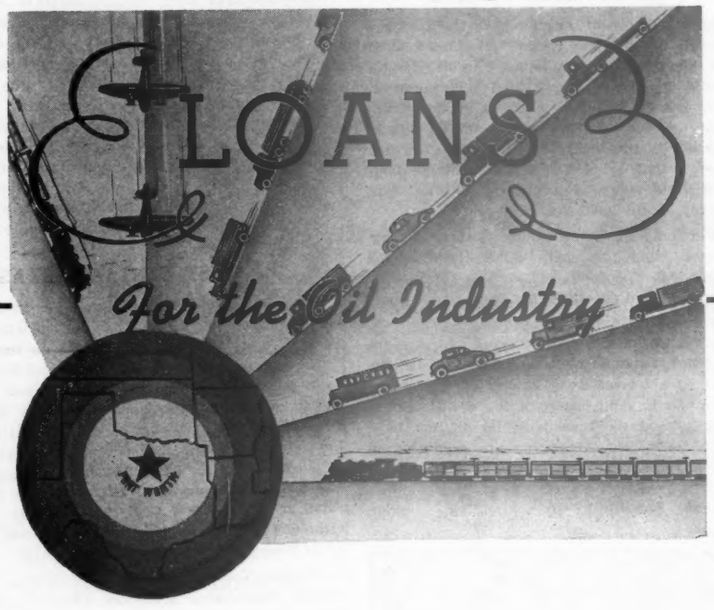
Central Ohio

(Continued from Page 66)

In Washington County, Salem Township, Bay Oil Co. No. 1 H. J. Wenzel, Lot 66, was dry in the Keener sand at 1,120 feet.

Lima Field

In the area northeast of Tiffin, Seneca County, Clinton Township, Section 7, the Sun Oil Co. abandoned its test on the Jacob Zeis farm at 2,091 feet. The Green sand was dry. In Pleasant Township, Jones



THE USEFULNESS of Fort Worth Banks to the oil industry can be judged largely by their increased volume of oil loans. During the first 10 months of 1938, the Banks of Fort Worth have loaned to responsible operators and oil concerns over twice as much as in any previous year, both in the amount of money and number of loans. Discuss YOUR loan requirements with us.

THE FIRST NATIONAL BANK
THE FORT WORTH NATIONAL BANK
CONTINENTAL NATIONAL BANK

Member Banks of the Fort Worth Clearing House Association

& Keiner, Section 25, S. D. Sours had the top of the Green sand at 2,051 feet. Water was encountered at 2,060 feet, with no oil or gas showing. The hole may be carried deeper.

In Hancock County, Delaware Township, Bert Sheldon No. 2 W. J. Moore is a small gas well in the Trenton at 1,256-73 feet. In Wood County, Portage Township, Goodwill Oil & Gas Co. No. 1 Lester Shinew, Section 5, is drilling at 375 feet in the Trenton.

British Petroleum Imports Increased 5.9 Per Cent

Receipts of petroleum into the United Kingdom during September totaled 261,472,000 Imperial gallons, compared with 235,085,000 gallons for the same month in 1937. Accumulative imports for the first nine months this year were 2,481,453,000 gallons, an increase of 137,648,000 gallons, or 5.9 per cent over the same period last year.

The Netherlands West Indies continues the largest supplier of United Kingdom petroleum requirements with Iran and the United States following in that order. Shipments from the United States totaled 413,270,000 gallons for the first nine months of this year, compared to 275,240,000 gallons for the same period last year, an increase of more than 50 per cent. Receipts from Venezuela gained 87.7 per cent while those from Mexico declined nearly 51 per cent, a loss largely confined to the period of March 18 to September 30. Details follow:

	Receipts—In 1,000 gallons Jan. to Sept.	
Consignor:	1938	1937
Netherlands W. Indies	875,339	831,477
Iran	469,093	490,974
United States	413,270	275,240
British W. Indies	136,403	108,652
Iraq	118,006	87,517
Venezuela	108,407	57,746
Rumania	68,738	118,358
Mexico*	59,648	121,562
Russia	59,491	62,811
Peru	18,254	66,021
Netherlands E. Indies	24,050	20,006
Other British	36,868	19,709
Other foreign	93,886	83,642
Total	2,481,453	2,343,805
Total British	173,271	128,451
Total foreign	2,308,182	2,215,354

*Includes figures for gas oil, not disclosed in customs return, as follows: September, 1938—nil; September, 1937—1,959,598 gallons; January to September, 1938—5,314,245 gallons; January to September, 1937—12,027,682 gallons.

	Receipts—In 1,000 gallons Jan. to Sept.	
	1938	1937
Crude oil	453,256	396,707
Gasoline	1,107,944	1,047,962
Kerosene	161,683	163,001
Lubricating oil	85,261	89,610
Gas oil	123,858	106,004
Fuel oil	534,580	528,950
Paraffin wax*	549,122	786,837
Asphalt and bitumen (nat.)*	57,084	71,840

*In hundreds of pounds. Conversion factor: 35 Imperial gallons per U. S. barrel.

California Fields

(Continued form Page 89)

trouble prevented it from going on steady production. Based on the depleted condition of the productive zone this well is not expected to show large production and the initial output therefore should be around 250 bbls. daily. Additional tideland wells bottomed farther out beneath the submerged areas should, however, register excellent production.

San Joaquin Basin

Shell Oil Co. completed a normal well in the Round Mountain field of Kern County this week when No. 20 Freeman in Section 20-28-29 was brought in pumping 281 bbls. of 21.7 gravity oil cutting 7 per cent from 1,922 feet after the hole had been finished with 555 feet of 5½-inch liner landed at 1,921 feet and carrying perforations at 1,388-1,866 feet and at 1,961-21 feet. In the Belridge area of Kern County, General Petroleum Corp. has completed No. 2 St. Helens, pumping 32 bbls. of 19.6 gravity oil cutting 16 per cent from a depth of 1,388 feet. This well is located on a large block of land on which General Petroleum Corp. drilled a deep dry hole following a seismograph survey which indicated a possibility of an accumulation. Two other wells should be ready for production tests in the Rio Bravo field within 10 days and their completion should have a tendency to restrict further development work as all operators are taking as much time between wells as lease requirements will permit. Standard Oil Co. No. 2 Mushrush in the Wasco field of Kern County and Continental Oil Co. No. 4-A Kern County Land in Section 8-27-24 should be drilling within a week.

FORT WORTH'S

FRIENDLY BANKS

Know OIL FINANCING

FOR years oil men have found in Fort Worth definite advantages necessary to the development of the Oil Industry. One advantage in particular is the interest, encouragement and assistance always shown in oil activities by Fort Worth's friendly "oil minded" Banks.

Fort Worth's financial men speak the language of the Oil Industry. They study and know its problems. They keep informed on the spread of "the play" so as to be ready to handle any transaction with the least delay. The financing of drilling and production is their everyday work. Refining problems are not new or unusual to them, for their years of experience in the managing of Fort Worth's friendly Banks have made them "oil minded." You can count on them. They know oil financing.

Within Fort Worth's Magic Circle is the World's Largest Oil Producing Area, and Fort Worth is the logical center. Long has it been the headquarters for drilling contractors, producers, manufacturers and oil field equipment distributors. They appreciate these advantages: the friendly "oil minded" Banks . . . contented labor . . . abundant water supply . . . low industrial electric power rates . . . economical natural gas . . . no State sales or income taxes . . . and the superior transportation facilities. These are a few of the advantages that make Fort Worth an important Industrial City.

Fort Worth is growing rapidly with many new industries coming into the city, but it is not commerce alone that makes Fort Worth the logical choice of the Southwest. These other factors make life better here. Its people are friendly. It offers a school system as fine as any in the Nation. The parks are large and beautiful while the large nearby lakes offer many pleasures. These advantages help make Fort Worth a pleasant city in which to live, to work, to play and to rear your children.

FOR SPECIFIC SURVEYS AND DETAILED INFORMATION REGARDING FORT WORTH OPPORTUNITIES, WRITE THE OIL AND GAS COMMITTEE

CHAMBER of COMMERCE

FORT WORTH

Heart of the Mid-Continent Area

Crude Exports Increase; Less Gain in Products

During the first nine months of the current year U. S. export trade in petroleum products was characterized by extreme variations. These variations ranged from an increase of 74 per cent in the case of natural gasoline to a decrease of 64 per cent in exports of liquid petroleum gases.

Exports of crude continued to increase totaling 60,006,000 bbls., for this period in 1938 (daily average—220,000 bbls.,) as compared with 48,769,000 bbls., for the first three quarters of last year (daily average—178,000 bbls.,) or an increase of 23 per cent.

On the other hand, exports of liquid refined products, although exported in greater quantities in 1938, do not approach the gains made by crude oil. (In considering liquid refined products, natural gasoline, benzol, bunker fuel oil and greases are not included). Total liquid refined products exported during the previous nine months period were 70,455,000 bbls., (daily average—258,000 bbls.,) as compared with 76,773,000 bbls., (daily average—281,000 bbls.,) during the current period, or a gain of about 9 per cent.

Increased refinery development abroad appears primarily responsible for the growth in our crude exports and the continuous lessening of our refined oil trade.

Our chief customers for crude during the first nine months of 1938 continued to be Canada, Japan and France who bought 18,876,000, 17,835,000 and 12,479,000 bbls., respectively. In the 1937 period, these countries, in the same order as above, received 21,794,000, 10,746,000 and 7,049,000 bbls.

Natural gasoline, not included in the liquid refined products mentioned above, showed the greatest percentage increase (74 per cent), of all petroleum products exported. In this trade, the figure for the first nine months of 1938 amounted to 4,344,000 bbls. compared with 2,498,000 for the similar period in 1937. Netherlands West Indies, a world transshipment point, took 1,266,671 bbls. in the period under review or almost double its share during the previous period. The United Kingdom also contributed to the increased trade by taking 794,175 bbls. in the later period as compared with 633,339 bbls. in the former. Canada fell from second to third place, being the recipient of 630,000 bbls. in the first three quarters of 1938 as against 682,000 bbls. for the corresponding quarters of the preceding year. It is interesting to note that France more than doubled her purchases of natural gasoline, taking 551,000 bbls. in the 1938 period while Japan, in this later period, took 369,000 bbls., or over three times her share of the previous year. Customers which did not appear on the books in 1937 are U.S.S.R. with 330,000 bbls.; Spain, 43,000 and Italy 4,000 bbls. There is a possibility that this increased demand is to satisfy the growing requirements of military and civil aviation abroad.

Conforming to the general annual trend we find that exports of gasoline in bulk have shown a considerable increase, namely 31 per cent, while exports of gasoline in containers have suffered an 11 per cent loss. Chief buyers of gasoline in bulk from the United States during the first nine months of both 1937 and 1938 are the United Kingdom, Netherlands West Indies and the Netherlands. These countries took 5,785,000, 2,025,000 and 1,488,000 bbls., respectively in 1938 and 3,487,000, 1,744,000 and 1,656,000 bbls., in the same order in 1937. Total exports for the first nine months of 1938 were 28,314,000 bbls., as compared with 21,642,000 for the 1937 period.

As a purchaser of U. S. gasoline in containers, Japan advanced from third place in the 1937 period with 95,000 bbls. to first place in the current period with 232,000 bbls. Brazil which was our chief customer in the former period with 268,000 bbls. reverted to second place in the later year with 135,500 bbls. The 11 per cent decline in the total trade of this product was the result of our ability to market abroad only 1,119,000 bbls. in the 1938 nine months period as against 1,263,000 in the corresponding period of the previous year.

The notable decrease in our export trade in "naphtha, solvents, and other light products" of 42 per cent was due mainly to the complete failure of Italy to order any of these products in the later period. However, Turkey stepped from a comparatively remote rating to first place, taking 201,000 bbls., while the United Kingdom placed second with 176,000 bbls., an increase of 16,000 over her demand for the previous period. Smaller sales made to numerous users failed to bring our nine months total of 1938 (773,145 bbls.,) up to the previous figure of 1,338,000 bbls.

Although our exports of mineral spirits are small amounting to only 70,000 bbls. in the first nine months of 1937, and 87,000 bbls. in the corresponding quarters of the current year, the 24 per cent increase is an encouraging indication. Australia continues in the lead as the principal user of this commodity.

A small decrease, 16 per cent, in our exports of "kerosene in bulk" was noted, 5,929,000 bbls., as against 5,010,000 for the two periods under review. The Netherlands West Indies which was the destination of 1,002,000 bbls. was relegated to second place by the United Kingdom with 1,215,000 bbls. This trade with China fell off from 798,000 bbls. to 19,000 bbls. in the first three quarters of 1938, while the Netherlands likewise reduced its trade from 833,000 to 411,000 bbls.

"Kerosene in containers" exports which have likewise been diminishing in recent years, showed a decrease of 30 per cent, from 719,000 to 500,000 bbls. for the two comparative periods under discussion. Few generalizations can be drawn as this trade includes so many countries. However, the outstanding points are reduction of Brazil's patronage by about 45 per cent (from 288,000 to 157,000 bbls.), the complete disappearance of the Gold Coast from our 1938 books (48,000 bbls. to Gold Coast in former period), and the appearance of the Dominican Republic taking 23,000 bbls. in the current year.

A slight increase of 2 per cent brought our exports of "gas and distillate fuel oil" from a total of 21,886,000 bbls. in the first three quarters of 1937 to 22,351,000 bbls. in the comparative months of the present year. Netherlands West Indies took the leading position with 4,581,000 bbls., followed by Japan with 4,043,000 bbls. and Germany with 3,112,000 bbls. Gas oil, of increasing importance both from military and industrial standpoints, ranks third in quantity of petroleum exports, being exceeded only by crude and gasoline. It is also of importance as a stock to be converted into gasoline by cracking plants.

In comparing our export trade in residual fuel oil for the first nine months of 1938 with the corresponding months of 1937, we find an increase of 22 per cent. Expressed in quantities, the 1938 period is credited with 11,000,000 bbls. while 9,000,000 bbls. of fuel oil were exported in the corresponding period of 1937. Trade with Japan, although totaling only 2,208,000 bbls. in the 1938 period as against the previous figure of 3,620,000 was still our principal source of revenue from fuel oil. Next in order came Chile and Cuba taking 1,665,000 and 1,143,000 bbls. respectively during the 1938 nine months period.

Exports of all lubricants (including greases converted to barrels) in the nine months period under review, amounted to 7,413,000 bbls. as compared with 8,537,000 for the 1937 period, a decline of 13 per cent. Red and pale lubricating oils, the most important item in this classification, suffered a decrease of 18 per cent, from 5,192,000 to 4,274,000 bbls. Bright stock, the next item of importance in the lubricating oil classification, showed a quantity loss from 1,334,000 to 1,193,000 bbls., or an 11 per cent recession.

Exports of "lubricating oils, not elsewhere classified," showing an increase of 46 per cent was the only bright spot in the lubricants group. The quantities of this commodity however, were not large, amounting to 430,000 and 627,000 bbls. for the 1937 and 1938 periods respectively.

The greatest percentage loss in our export trade in lubricants appeared in lubricating greases, the sales sinking by 32 per cent below the level of the previous period.

The folowing table shows the diminution in sales of greases to our principal customers:

	First 9 months 1937 (pounds)	First 9 months 1938 (pounds)
United Kingdom	8,626,000	4,369,000
Japan	7,416,000	2,831,000
Belgium	5,669,000	3,071,000
Australia	4,588,000	4,543,000
Canada	4,528,000	4,081,000
Germany	4,076,000	1,148,000
France	3,574,000	2,982,000

The most drastic decline in the United States export trade in petroleum products during the first three quarters of 1938 occurred in liquid petroleum gases, amounting to 63 per cent. The statistics show that in the corresponding quarters of 1937 8,223,000 pounds were exported compared with but 3,015,000 pounds in the current period. The outstanding loss occurred in the case of France, which took 6,146,000 pounds in the previous period and practically none in the first three quarters of this year. The United Kingdom, Italy, and Bermuda reduced their purchases from 142,000, 130,300 and 175,000 pounds to 55,000, 50,000 and 76,000 pounds respectively. On the other hand Canada, Mexico and Germany gave needed encouragement to this trade by increasing their procurements from 794,000, 540,000 and 1,000 pounds to 1,146,000, 1,385,000 and 44,000 pounds respectively.

Total paraffin wax exports showed a decline of 19 per cent, from 174,241,000 pounds in the first three quarters of 1937 to 140,987,000 pounds in the like period of the present year. Foreign trade in refined wax showed the greatest decrease, 23 per cent, representing a loss from 98,093,000 pounds to 75,872,000 pounds. Our export trade in unrefined paraffin wax during the periods under review was slightly less discouraging showing a loss of 14 per cent. In units of quantity, these shipments decreased from 76,148,000 to 65,115,000 pounds.

The export figure for asphalt (all classes) amounting to 153,000 long tons in the first nine months of 1937 was bettered by 2,000 long tons in the 1938 period, a gain of about 1 per cent.

Petroleum coke on the other hand suffered a 30 per cent setback, exports shrinking from 121,000 to 83,000 long tons.

EXPORTS OF PETROLEUM AND PETROLEUM PRODUCTS FIRST 9 MONTHS 1937 AND 1938

(In Thousands of Units)

	1937	1938	Per cent change
Crude Petroleum (bbls.), total	48,769	60,006	+23
Motor Fuel (bbls.), total	27,158	34,728	+20
Natural gasoline	2,498	4,344	+74
Gasoline in bulk	21,643	28,314	+31
Gasoline in containers	1,263	1,119	—11
Naphtha	1,338	774	—42
Benzol	416	177	—57
Mineral Spirits (bbls.), total	70	87	+24
Kerosene (bbls.), total	6,648	5,510	—17
In bulk	5,929	5,010	—16
In containers	719	500	—30
Gas oil and distillate:			
Fuel oil (bbls.), total	21,886	22,351	+ 2
Residual fuel oil (bbls.), total	9,326	11,378	+22
Bunker oil (bbls.), total	28,480	27,575	— 3
American vessels	12,941	10,888	—16
Foreign vessels	15,539	16,687	+ 7
Lubricants (bbls.), total	8,537	7,413	—13
Oils, red and pale	5,192	4,274	—18
Oils, black	471	334	—29
Oils, bright stock	1,334	1,193	—11
Oils, steam refined stocks	812	773	— 5
Oils, transformer and insulating	23	21	— 8
Oils, small package	19	18	— 5
Oils, not elsewhere specified	430	627	+46
Greases, all kinds	256	173	—32
Liquid Petroleum Gases (lbs.), total	8,223	3,015	—63
Paraffin Wax (lbs.), total	174,241	140,987	—19
Unrefined	76,148	65,115	—14
Refined	98,093	75,872	—23
Asphalt (long tons), total	153	155	+ 1
Petroleum, unmanufactured	27	28	+ 4
Petroleum, manufactured	102	108	+ 6
Natural, unmanufactured	13	9	—30
Natural, manufactured	11	10	— 9
Petroleum coke (long tons)	121	83	—30

Compiled by the Fuels Section, Metals and Minerals Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Cole, F. E., No. 18 Paderewski, Santa Maria, S. Barb.	28-10-34	4,240	sd. sh. drlg.
Union Oil, No. 12 Coast, Santa Maria, S. Barbara	26- 9-34	3,900	pump 156 b.d.
O'Donnell, J. E., No. 1 Helen, Lompoc, S. Barbara	8- 7-33	4,997	sd. sh. drlg.
Douglas & Stratton, No. 1 Los Alamos, S. Barbara	8- 8-33	6,690	br. sh. drlg.
Richfield Oil, No. 1 Tinquaic, Foxen Can., S. Barb.	36- 9-32	1,968	sd. sh. drlg.
Barnsdall Oil, No 1 Pezzoni, Gato Ridge, S. Barbara	15- 8-32	4,494	balling
Continental Oil, No. 2 Laguna, Zaca Creek, S. Barb.	25- 8-31	5,561	sd. sh. drlg.
General Pet., No. 1 Laguna, Los Olivos, S. Barbara	6- 7-30	3,860	sd. sh. drlg.
Ventura Drlg., No. 1 Ojai, Ventura	10- 3-23	1,898	sd. sh. drlg.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,801	sd. sh. drlg.
Claran Oil, No. 1 Hardison, Sespe, Ventura	22- 4-20	1,398	sd. sh. drlg.
Merchants Pet., No. 8 Hillside, Sespe, Ventura	1- 4-20	1,376	reaming
Speik Oil, No. 2 Speik, Sespe, Ventura	33- 5-19	3,500	cleaning out
St. Louis Oil, No. 1 Williamson, Sespe, Ventura	1- 4-20	1,445	sd. sh. drlg.
Section 20 Oil, No. 1, Sespe, Ventura	20- 5-19	2,360	rd. sh. drlg.
Texas Co., No. 135 Shiells, Shiells Canyon, Ventura	4- 3-19	4,066	cleaning out
C. C. M. Oil, No. 6-A Hobson, Padre Canyon, Vent.	15- 3-24	2,295	sd. sh. drlg.
C. C. M. Oil, No. 18-B Hobson, Rincon, Ventura	17- 3-24	1,987	sd. sh. drlg.
Tide Water A. O., No. 36 V.L.W., Vent. Ave., Vent.	25- 3-23	7,170	sd. sh. drlg.
Tide Water A. O., No. 40 V.L.W., Vent. Ave., Vent.	25- 3-23	1,650	sd. sh. drlg.
Tide Water A. O., No. 84 Lloyd, Ventura Ave., Vent.	27- 3-23	7,600	redrlg. 7,360
Tide Water A. O., No. 123 Lloyd, Vent. Ave., Vent.	27- 3-23	2,450	sd. sh. drlg.
Tide Water A. O., No. 126 Lloyd, Vent. Ave., Vent.	27- 3-23	7,970	hd. sh. drlg.
Tide Water A. O., No. 128 Lloyd, Vent. Ave., Vent.	27- 3-23	5,705	cmtd. 5,705
Tide Water A. O., No. 134 Lloyd, Vent. Ave., Vent.	27- 3-23	8,339	cleaning out
Tide Water A. O., No. 7 Hartman, Vent. Ave., Vent.	22- 3-23	10,160	sd. sh. drlg.
Shell Oil, No. 96 Taylor, Ventura Ave., Ventura	28- 3-23	8,930	flow 25 b.d.
Shell Oil, No. 32 Edison, Ventura Ave., Ventura	21- 3-23	7,097	sd. sh. drlg.
General Pet., No. 16 Barnard, Ventura Ave., Vent.	21- 3-23	5,449	cleaning out
Brit. Amer. Oil, No. 7 Bolsa, Ventura Ave., Vent.	21- 3-23	1,850	cmtd. 1,840
Lloyd Corp., No. 2 Dabney-Lloyd, Vent. Ave., Vent.	23- 3-23	7,303	P.B. 7,060
Belridge Oil, No. 27-4, North Belridge, Kern	27-27-20	7,286	br. sh. drlg.
Belridge Oil, No. 27-19, North Belridge, Kern	27-27-20	8,480	flow 2,450 b.d.
Belridge Oil, No. 26-25, North Belridge, Kern	26-27-20	2,990	sd. sh. drlg.
Tide Water A. O., No. 22, North Belridge, Kern	21-27-20	8,305	hd. sh. drlg.
General Pet., No. 2 St. Helens, Belridge, Kern	12-28-20	1,388	rig to pump
Shell Oil, No. 20 Freeman, Round Mountain, Kern	20-28-29	1,922	pump 281 b.d.
Brown-Saffold Drlg., No. 2 Newbery, Rd. Mt., Kern	32-28-29	2,045	hd. sd. drlg.
Fuhrman, A., No. 13 Kernco, Kern River, Kern	28-28-28	635	cleaning out
Hast Oil, No. 5 Kern, Kern River, Kern	34-28-28	360	O.S. drlg.
Reid, E. O., No. 1 Kern, Kern River, Kern	34-28-28	517	dry; abd.
Barnhart & Morrow, No. 2 Smith, Mount Poso, Kern	34-27-27	483	sd. sh. drlg.
Framac Oil, No. 3 Brown, Mount Poso, Kern	22-27-27	1,351	cleaning out
Sierra Slope Oil, No. 1 Michaels, Mount Poso, Kern	25-26-28	965	dry; abd.
Federal Drlg., No. 4 B. & G., Mount Poso, Kern	13-26-27	1,331	sd. sh. drlg.
W. P. W. Pet., No. 1 Glide, Mount Poso, Kern	19-26-28	1,951	dry ;abd.
Pottenger, F. M., No. 1 Villard, Mount Poso, Kern	2-26-28	569	will abdn.
Richfield Oil, No. 1 Union Avenue, Kern	5-30-28	7,890	sd. sh. drlg.
Wood-Callahan Oil, No. 3 Comm., Edison, Kern	21-30-29	3,569	flow 195 b.d.
O'Reily, F., No. 1 Berree, Edison, Kern	5-30-29	2,542	P.B. 2,509
Texas Co., No. 1 Lowe, Fruitvale, Kern	7-29-27	10,122	fish D.P.
West. Gulf Oil, No. 40-B, KCL, Fruitvale, Kern	22-29-27	3,811	O.S. drlg.
Greer, P. H., No. 2 Perrel, Mountain View, Kern	9-31-29	6,325	pump 60 b.d.
Renner, G. E., No. 2 R.H.L., Sivert, Kern	27-30-30	2,298	hd. sh. drlg.
Continental Oil, No. 3-A, KCL, Wasco, Kern	8-27-24	13,644	P.B. 10,972
Cal. Lands, Inc., No. 1 Salisbury, Buttonwillow, Kern	7-29-24	8,555	sd. sh. drlg.
Superior Oil, No. 3 Ruhl, Rio Bravo, Kern	1-29-25	11,438	O.S. drlg.
Union Oil, No. 7-34, KCL, Rio Bravo, Kern	34-28-25	1,509	sd. sh. drlg.
Getty Oil, No. 3 Ramsey, Rio Bravo, Kern	35-28-25	11,396	O.S. drlg.
General Pet., No. 3 Wagoner, Rio Bravo, Kern	35-28-25	9,781	sd. sh. drlg.
General Pet., No. 4 Van Ness, Rio Bravo, Kern	2-29-25	11,418	O.S. drlg.
Shell Oil, No. 58-8-A, KCL, Famosa, Kern	8-27-26	8,820	sd. sh. drlg.
Standard Oil, No. 2 Fleishauer, Greeley, Kern	20-29-26	11,903	P.B. 11,590
Standard Oil, No. 11-16, KCL, Greeley, Kern	20-29-26	7,990	sd. sh. drlg.
Standard Oil, No. 1 Elrich, Greeley, Kern	20-29-26	9,650	sd. sh. drlg.
Superior Oil, No. 12 KCL, Greeley, Kern	3-30-26	2,577	sd. sh. drlg.
Continental Oil, No. 1-E, KCL, Stevens, Kern	17-30-26	8,574	redrlg. 8,187
Shell Oil, No. 72-29-A, KCL, Ten Section, Kern	29-30-26	7,690	sd. sh. drlg.
Shell Oil, No. 47-14-A, KCL, Canal, Kern	14-30-25	8,287	sd. sh. drlg.
Shell Oil, No. 87-4-B, KCL, Canal, Kern	4-30-25	9,731	sd. sh. drlg.
Ohio Oil, No. 9-E, KCL, Canal, Kern	14-30-25	8,340	flow 2,951 b.d.
Standard Oil, No. 1 Rio Gravo fee, Canal, Kern	12-30-25	7,864	redrlg. 5,580
Richfield Oil, No. 1 KCL, Tupman, Kern	32-30-25	8,523	coring
Standard Oil, No. 223-15-D, Midway-Sunset, Kern	15-32-24	2,850	sd, sh. drlg.
Fried, Julius, No. 1 Fried, Midway-Sunset, Kern	34-32-24	4,802	gr. sd. drlg.
Texas Co., No. 102 Midway, Midway-Sunset, Kern	36-31-22	1,070	sd. sh. drlg.
National Oil, No. 31, Midway, Midway-Sunset, Kern	35-32-23	1,220	br. sh. drlg.
Richfield Oil, No. 1, KCL, Wheeler Ridge, Kern	28-11-20	8,330	sd. sh. drlg.
Tide Water A. O., No. 2 S.P., Tejon Ranch, Kern	15-11-19	2,020	sd. sh. drlg.
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	6,986	dry; abd.
Tide Water A. O., No. 1-F, North Coalinga, Fresno	1-19-15	6,429	sd. sh. drlg.
Pet. Sec., No. 8-7-F, East Coalinga, Fresno	7-20-16	7,735	O.S. drlg.
Pet. Sec., No. 31-18-F, East Coalinga, Fresno	18-20-16	7,191	O.S. drlg.
Standard Oil, No. 1-17-F fee, East Coalinga, Fresno	17-20-16	2,490	sd. sh. drlg.
Superior Oil, No. 2 fee, East Coalinga, Fresno	7-20-16	6,000	sd. sh. drlg.
Jarvis, L. F., No. 2 fee, West Coalinga, Fresno	14-20-14	100	sd. sh. drlg.
Pierce, C., No. 1 Shorb, Panoche, Fresno	16-14-12	1,380	hd. sd. drlg.
Dauphin Dev., No. 2 Boone, Alcalde, Fresno	30-21-14	4,396	gr. sh. drlg.
Stuart Oil, No. 1 Alcalde, Alcalde, Fresno	12-21-14	931	sd. sh. drlg.
Union Oil, No. 4 King, Kettleman North, Fresno	29-21-17	8,520	cleaning out
K.N.D.A., No. 27-8-Q, Kettleman North, Kings	6-22-18	8,710	cleaning out
K.N.D.A., No. 58-8-Q, Kettleman North, Kings	8-22-18	8,393	flow 500 b.d.
K.N.D.A., No. 6-16-Q, Kettleman North, Kings	16-22-18	4,754	sd. sh. drlg.
K.N.D.A., No. 36-16-Q, Kettleman North, Kings	16-22-18	7,885	reaming
K.N.D.A., No. 65-20-Q, Kettleman North, Kings	20-22-18	7,387	gr. sd. drlg.
K.N.D.A., No. 36-22-Q, Kettleman North, Kings	22-22-18	3,976	sd. sh. drlg.
Standard Oil, No. 46-13-H, Kettleman North, Kings	13-21-16	10,998	sd. sh. drlg.
Standard Oil, No. 56-1-P, Kettleman North, Kings	1-22-17	4,960	sd. sh. drlg.
Standard Oil, No. 21-13-P, Kettleman North, Kings	13-22-17	9,097	sd. sh. drlg.
Standard Oil, No. 76-7-Q, Kettleman North, Kings	7-22-18	3,297	sd. sh. drlg.
Standard Oil, No. 41-17-Q, Kettleman North, Kings	17-22-18	7,896	sd. sh. drlg.
Tannehill, L. B., No. 1 Reliz, King City, Monterey	36-20- 8	2,176	sd. sh. drlg.
Loma Grande Oil, No. 1 Edna, San Luis Obispo	28-31-13	2,125	dry; abd.
Epco, Inc., No. 1 Ajex, Union, San Luis Obispo	27-26-13	1,990	sd. sh. drlg.
Shephard Oil, No. 3 Associates, Terra Bella, Tulare	35-22-27	956	granite; abd.
Amerada Pet., No. 1 California Lands, Colusa, Colusa	34-16- 1	8,152	dry; abd.
Richfield Oil, No. 1, Potrero Hills, Solano	10- 4- 1	3,290	P.B. 3,280

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Mojave Pet., No. 1 Hillside, Gorman, Los Angeles	5- 8-18	477	sd. sh. drlg.
Texas Co., No. 1 Anderson, Ocean Park, Los Angeles	17- 2-15	6,350	sd. sh. drlg.
Rolling Hills Pet., No. 1 Weston, Palos Verdes, L. A.	27- 4-14	5,100	will test
Amron Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	4,870	P.B. 4,210
Alford Oil, No. 11 Lomita, Torrance, Los Angeles	23- 4-14	3,996	sd. sh. drlg.
Colma Oil, No. 1 Smith, Torrance, Los Angeles	10- 4-14	5,084	will abdn.
H. D. Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	3,807	rigged up
Hart Pet., No. 1 Neher, Torrance, Los Angeles	23- 4-14	3,800	deepening
Kerben Oil, No. 2 Empire, Torrance, Los Angeles	23- 4-14	4,985	pump water
Kirk, W. A., No. 10 Lomita, Torrance, Los Angeles	23- 4-14	3,990	sd. sh. drlg.
Kern Pet., No. 1-A Madden, Torrance, Los Angeles	23- 4-14	3,684	sd. sh. drlg.
Louisiana Oil, No. 2 Lord, Torrance, Los Angeles	23- 4-14	5,021	O.S. drlg.
Mallon, Felix, No. 2 Martner, Torrance, Los Angeles	23- 4-14	3,680	sd. sh. drlg.
Medill, John, No. 4 Frenger, Torrance, Los Angeles	9- 4-14	3,595	rigged up
Paso Oil, No. 1 Lyle, Torrance, Los Angeles	22- 4-14	3,970	sd. sh. drlg.
Moon Oil, No. 1 Beaver, Torrance, Los Angeles	23- 4-14	5,083	pump 100 b.d.
Russell, T., No. 2 Clarke, Torrance, Los Angeles	23- 4-14	5,000	O.S. drlg.
Standard Oil, No. 1-1 Marble, Torrance, Los Angeles	15- 4-14	4,950	O.S. drlg.
Standard Oil, No. 1-2 Marble, Torrance, Los Angeles	15- 4-14	3,828	will deepen
Standard Oil, No. 2-10 Marble, Torrance, L. Angeles	22- 4-14	4,965	flow 135 b.d.
Standard Oil, No. 2-11 Marble, Torrance, L. Angeles	22- 4-14	4,593	sd. sh. drlg.
Westside Oil, No. 1 Exeter, Torrance, Los Angeles	23- 4-14	3,835	will deepen
Wilson, Ray, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	1,896	sd. sh. drlg.
Woolner Oil, No. 2 Lomita, Torrance, Los Angeles	23- 4-14	3,816	will deepen
West Basin Oil, No. 1 Eyster, Torrance, L. A.	23- 4-14	3,775	cleaning out
C. C. M. O., No. 15, Torrance, Los Angeles	14- 4-14	3,990	sd. sh. drlg.
C. C. M. O., No. 18, Torrance, Los Angeles	14- 4-14	5,010	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing)
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shut off O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Bush Oil, No. 2 Gimenez, Harbor City, L. A.	25-	4-14	5,267	flow 316 b.d.
Bush Oil, No. 1 Torino, Harbor City, L. A.	25-	4-14	5,567	deepening
Caminol, Ltd., No. 3-14 Lomita, Harbor City, L. A.	25-	4-14	5,293	flow 196 b.d.
D. & B. Oil, No. 2 Lomita, Harbor City, Los Angeles	25-	4-14	2,184	sd. sh. drlg.
General Pet., No. 11 Poggi, Harbor City, L. Angeles	25-	4-14	4,996	sd. sh. drlg.
General Pet., No. 12 Poggi, Harbor City, L. Angeles	25-	4-14	5,100	sd. sh. drlg.
Macrate, A. N., No. 1-1 Kupfer, Harbor City, L. A.	25-	4-14	4,970	sd. sh. drlg.
Macrate, A. N., No. 1 Holden, Harbor City, L. A.	25-	4-14	5,303	sd. sh. drlg.
O'Donnell, J. L., No. 44 Oakley, Harbor City, L. A.	25-	4-14	2,896	sd. sh. drlg.
Padran Oil, No. 1 McEwen, Harbor City, L. A.	25-	4-14	5,304	flow 165 b.d.
Richfield Oil, No. 1 Capitol, Harbor City, L. A.	30-	4-13	3,997	sd. sh. drlg.
Ring Oil, No. 5 Hawkins, Harbor City, L. A.	25-	4-14	5,235	flow 250 b.d.
Texas Co., No. 2 Oakley, Harbor City, L. A.	30-	4-13	3,697	sd. sh. drlg.
West. Talc. Co., No. 1 Pierce, Harbor City, L. A.	25-	4-14	5,325	idle
Union Oil, No. 65 Callender, Dominguez, L. A.	32-	3-13	1,750	sd. sh. drlg.
Union Oil, No. 49 Hellman, Dominguez, L. A.	33-	3-13	8,001	sd. sh. drlg.
Shell Oil, No. 11 Reyes, Dominguez, Los Angeles	33-	3-13	4,223	milling 2,127
Richfield Oil, No. 1 Estate, Dominguez, L. A.	2-	4-13	4,296	sd. sh. drlg.
Entrikin, W. E., No. 1-D West, Athens, L. A.	7-	3-13	1,183	sd. sh. drlg.
Rairfield, F. E., No. 1 Abel, Rosecrans, Los Angeles	19-	3-13	7,399	redrlg. 6,650
Bankline Oil, No. 1 Kirby, Rosecrans, Los Angeles	20-	3-13	7,655	redrlg. 6,805
Barnsdall Oil, No. 10 Rosecrans, Rosecrans, L. A.	20-	3-13	8,750	P.B. 8,572
Union Oil, No. 27 Rosecrans, Rosecrans, L. A.	19-	3-13	3,792	sd. sh. drlg.
Universal Consd., No. 6 Trust, Rosecrans, L. A.	18-	3-13	7,565	tested wet
Republic Pet., No. 1 Trust, Rosecrans, Los Angeles	18-	3-13	7,571	P.B. 7,543
Superior Oil, No. 12 Maxwell, Rosecrans, L. A.	19-	3-13	7,679	sd. sh. drlg.
Hydrocarbon Prod., No. 1 Gardena, Rosecrans, L. A.	20-	3-13	4,180	sd. sh. drlg.
West. Gulf Oil, No. 1 Bagg, Rosecrans, L. A.	17-	3-13	7,594	sd. sh. drlg.
Basin Oil, No. 2 Club, Potrero, Los Angeles	34-	2-14	6,176	sd. sh. drlg.
Barnsdall Oil, No. 4 R.S.F., Newhall, Los Angeles	26-	4-17	6,572	O.S. drlg.
Continental Oil, No. 1 R.S.F., Newhall, Los Angeles	20-	4-17	2,094	sd. sh. drlg.
Newhall Associates, No. 4 Needham, Newhall, L. A.	13-	3-16	3,504	mill 2,502
Mojave Pet., No. 2 Jennings, Newhall, Los Angeles	33-	5-14	200	sd. sh. drlg.
Mangrum & Page, No. 1 Lintz, Newhall, L. A.	4-	3-15	50	sd. sh. drlg.
Royal Lands, No. 1 Ramona, Castaic, Los Angeles	8-	4-17	1,260	sd. sh. drlg.
General Pet., No. 4 Blinn, Wilmington, Los Angeles	35-	4-13	2,430	sd. sh. drlg.
General Pet., No. 28 Harbor, Wilmington, L. A.	2-	5-13	3,900	flow 580 b.d.
General Pet., No. 30 Harbor, Wilmington, L. A.	2-	5-13	1,821	sd. sh. drlg.
General Pet., No. 31 Harbor, Wilmington, L. A.	2-	5-13	3,038	O.S. drlg.
Allied Pet., No. 30 Harbor, Wilmington, L. A.	35-	4-13	2,530	sd. sh. drlg.
Bond Pet., No. 1 Mutual, Wilmington, Los Angeles	35-	4-13	3,288	sd. sh. drlg.
Dunlap, D. D., No. 4-W, Wilmington, Los Angeles	32-	4-13	2,850	sd. sh. drlg.
Getty Oil, No. 4-W, Wilmington, Los Angeles	33-	4-13	5,690	sd. sh. drlg.
Hollywood Oil, No. 5 Baxter, Wilmington, L. A.	33-	4-13	2,541	sd. sh. drlg.
Master Pet., No. 1 Chuck, Wilmington, Los Angeles	35-	4-13	3,990	sd. sh. drlg.
Pacific West. Oil, No. 1 Comm., Wilmington, L. A.	33-	4-13	5,690	recmtd. 5,602
Union Pacific R. R., No. 86, Wilmington, L. A.	3-	5-13	3,542	flow 530 b.d.
Union Pacific R. R., No. 93, Wilmington, L. A.	4-	5-13	4,093	flow 790 b.d.
Union Pacific R. R., No. 94, Wilmington, L. A.	4-	5-13	3,598	O.S. drlg.
Union Pacific R. R., No. 100, Wilmington, L. A.	3-	5-13	2,070	sd. sh. drlg.
Union Pacific R. R., No. 2-EU, Wilmington, L. A.	34-	4-13	3,592	O.S. drlg.
Union Pacific R. R., No. 3-EU, Wilmington, L. A.	34-	4-13	2,773	sd. sh. drlg.
Universal Consd., No. 3 Newport, Wilmington, L. A.	2-	5-13	4,100	flow 1,080 b.d.
Universal Consd., No. 6 Newport, Wilmington, L. A.	2-	5-13	1,984	sd. sh. drlg.
Hogan Pet., No. 2 Burkhard, San Pedro, L. A.	6-	5-13	2,270	sd. sh. drlg.
St. Helens Pet., No. 29 Monterey, Montebello, L. A.	2-	2-12	6,590	sd. sh. drlg.
St. Helens Pet., No. 2 Taylor, Montebello, L. A.	2-	2-12	6,250	flow 550 b.d.
Standard Oil, No. 3 Braun, Montebello, L. A.	2-	2-12	6,700	deepening
Pongratz Pet., No. 1 Martin, Montebello, L. A.	2-	2-12	6,710	deepening
V-8 Oil, No. 1 Estelle, Montebello, Los Angeles	2-	2-12	6,540	deepening
Mont. Res. Oil, No. 1 M. L. & W., Montebello, L. A.	2-	2-12	6,470	O.S. drlg.
Hathaway Oil, No. 1 Dore, Montebello, L. A.	11-	2-12	7,181	flow 520 b.d.
Brookline Oil, No. 1 Drake, Montebello, L. A.	2-	2-12	6,486	deepening
Texas Co., No. 6 Baldwin, Santa Fe Springs, L. A.	6-	3-11	3,855	sd. sh. drlg.
Caminol Co., Ltd., No. 2-10, North Long Beach, L. A.	13-	4-13	7,697	sd. sh. drlg.
Johnston Drlg., No. 36, North Long Beach, L. A.	13-	4-13	4,202	sd. sh. drlg.
Massey & Asso., No. 1 Taylor, Long Beach, L. A.	19-	4-12	4,040	redrlg. 4,010
De Soto Oil, No. 1 Signal, Long Beach, L. A.	30-	4-12	9,936	test W.S.O.
Brea Canyon Oil, No. 49 Brea, Brea Canyon, Orange	2-	3-10	1,897	hd. sd. drlg.
Shell Oil, No. 20 Orange, Brea Canyon, Orange	2-	3-10	5,175	O.S. drlg.
Battersby, J. M., No. 1 Associates, Carmenita, Orange	21-	3-11	8,940	gr. sh. drlg.
Graham-Loftus Oil, No. 2 Perkins, E. Coyote, Orange	13-	3-10	3,386	P.B. 3,360
Bartholomae Oil, No. 7 Sterns, E. Coyote, Orange	22-	3-10	4,030	sd. sh. drlg.
Shell Oil, No. 1 Herriman, Richfield, Orange	22-	3- 9	2,653	dry; abd.
Shell Oil, No. 1 Dunford, Richfield, Orange	22-	3- 9	380	sd. sh. drlg.
J. E. F. Oil, No. 1 Bruce, Huntington Beach, Orange	36-	5-11	4,373	sd. sh. drlg.
Southwest Expl., No. 1 State, Hunt. Beach, Orange	10-	6-11	3,980	redrlg. 3,930
Southwest Expl., No. 2 State, Hunt. Beach, Orange	10-	6-11	4,350	completion
Apex Pet., No. 1 Harper, Huntington Beach, Orange	36-	5-11	5,437	dry; abd.
Shell Oil, No. 1 Irvine, Del Mar, Orange	6-	7- 9	1,149	sd. sh. drlg.
A. V. Oil, No. 1 Newport, Costa Mesa, Orange	16-	6-10	4,751	tested wet
Dauphin Dev., No. 1 Irwin, Ponto, San Diego	16-12-	4	798	sd. sh. drlg.
Palm City Oil, No. 1 Palm City, San Diego	21-18-	2	102	sd. sh. drlg.

KANSAS

(Week Ending November 26 (Descriptions are East unless marked otherwise)

Barton County

C. L. Carlock and Atlantic Ref. Co. No. 1 Demel, NE NW Sec. 30-17-13w. C.O. 2,835 ft.

Long & Johnson No. 1 Eveleigh, SW SW NE Sec. 3-18-14w. U.R. at 3,115 ft.

I. W. Murfin No. 1 Birzer, NE SW Sec. 21-19-11w. Drlg. 1,380 ft.

Newton & Clyde Pulse No. 1 Hagen, SW Sec. 20-20-11w. Cd. 3,323-26 ft.; T.D. and rec. slight sat.

Sinclair-Prairie No. 1 Prusa, SE SE SE Sec. 20-16-11w. Drlg. 2,525 ft.

Virginia Drlg. Co. No. 1 Clawson, SW NW Sec. 17-20-11w. Drlg. 1,480 ft.

Butler County

Stewart & Gross No. 1-A Semisch, NW SE SW Sec. 34-27-7. Pay 2,788-2,800 ft., T.D.; acd. and P. 2 B.O.P.H. and acd.

Cowley County

Ben Gralapp et al No. 1-A Clark, NW NW NE Sec. 11-31-3e. S.D. 3,248 ft.

Dickinson County

Franks et al No. 1 Huffman, NW SW Sec. 11-13-1. Rng. 10-in. 1,177 ft.

Ellis County

Cities Service No. 1 Hall "D," C NW Sec. 2-12-17w. Drlg. 2,400 ft.

Darby Pet. No. 1 Peavey, NW NE Sec. 24-11-18w. W.O.C. 2,830 ft.

Grant County

Panhandle-Eastern No. 1 Parsons, C N½ SW Sec. 25-30-37w. T.D. 2,700 ft.; 3,000,000 ft. gas and acd.; rec. 11,000,000 ft. gas; comp.

Greenwood County

Z. Dunlap et al No. 1 Warren, NW NW SW Sec. 4-28-10. S.D. 2,155 ft.

Russell B. Reed No. 1 Shell, NW SE Sec. 17-28-11e. Drlg. 925 ft.

Harvey County

Derby Oil and Gary Drlg. Co. No. 1 Jones, CEL NE NW Sec. 7-22-1w. T. D. 3,546 ft.; P.B. 3,300 ft.; to cmt.

Lanahan Drlg. No. 1 Lagree, SE SE Sec. 4-23-3w. T.D. 280 ft.; S.D.

Kingman County

Bunte Bros. No. 1 Shepard, SE SE SE Sec. 10-27-10w. T.D. 4,529 ft.; P.B. 4,086 ft.; acd. and p. 30 B.O. and 20 B.W. in 12 hrs.

Duwe & Farris No. 1 Kimminan, NE NW SW Sec. 12-30-9w. Drlg. 1,970 ft.

McPherson County

Marylyn Oil No. 1 Dixon, NW NE NW Sec. 7-19-2w. C.O. 2,800 ft.

Western Kans. O. & R. Co. No. 1 Union NW NE SW Sec. 18-17-1w. T.D. 2,689 ft.; p. 1½ B.O.P.H.

Marion County

Cox & McGinnis and Saco Oil Co. No. 1 Jolliffe, C S½ SW SE Sec. 2-22-5. T.D. 2,045 ft.; S.D.

Johnson et al No. 1-A Miltz, SW SW SW Sec. 24-17-4. T.D. 2,275 ft.; S.D.

Mead County

Cragin, Reeuscher & Turner No. 1 Adams, NW NW SE Sec. 22-34-30w. T.D. 200 ft.; R.U.R.

Pacific Midwest Oil No. 1 Rexford, NE SE SW Sec. 8-30-29w. S.D. 1,435 ft.

Ness County

C. L. Carlock and F. P. Cullum No. 1 Smith, C SW SE Sec. 11-17-25w. Drlg. 4,270 ft.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW Sec. 18-10-2w. C.O. 2,842 ft.

Pratt County

Champlin Ref. Co. No. 1 Elliott, SW NE Sec. 26-27-14w. Fsg. 4,857 ft.

Rice County

Cities Service No. 1 DeWitt, CSL NE Sec. 33-19-9w. Drlg. 175 ft.

Spurrier & Bruce No. 1 Cary, NE NW NW Sec. 30-18-8w. O.W.D.D.; O.T.D. 1,530 ft.; S.D. 1,680 ft.

J. H. Tatlock No. 1 L. C. Proffitt, SW SE SW Sec. 12-20-10w. Drlg. 150 ft.

J. H. Tatlock No. 1 R. P. Proffitt, SW NE Sec. 23-20-10w. Drlg. 1,773 ft.

Rooks County

Phillips Pet. Co. No. 1 Tanzey, C NW SW Sec. 25-8-18w. Arb. 3,418-3,423 ft., R.U.S.T. 3,423 ft.

Producers No. 1 Ham (O.W.D.D.), SW NW Sec. 25-7-19w. O.T.D. 1,800 ft.; C.O. 2,500 ft.

Russell County

K. F. Nelson No. 1 Polcyn, SW Sec. 31-13-15w. Drlg. 1,900 ft.

Phil-Han No. 1 Weimeister, SW Sec. 18-14-13w. Drlg. 2,980 ft.

W. I. Southern No. 1 Sellens, SW cor. Sec. 22-15-13w. Arb. 3,352-54 ft.; H.F. W. 3,377 ft.; P.B. 3,330 ft.

Western Kansas O. & R. Co. No. 1 Michel, CEL SW Sec. 1-15-14w. Arb. 3,311 ft.; T.D. 3,356 ft.; D.&A.

Yankey & Stearnes No. 1 Krog, NW SE NW Sec. 7-15-13w. Top pay 3,324-27 ft., T.D.; 900 ft. O.I.H. in 5 hrs.; rng. 5-in.

Saline County

Central States Oil Co. No. 1 Crawford, NW SW NE Sec. 26-13-3w. Drlg. 1,100 ft.

Sedgwick County

Frank Hudson et al No. 1 Fulton, NE SE Sec. 35-28-1e. U.R. 2,356 ft.

Stafford County

Stanolind O. & G. Co. No. 1 Curtis, SE cor. Sec. 31-21-12w. Viola 3,544 ft.; Arb. 3,638 ft.; R.U.S.T. 3,640 ft.

Sumner County

Cameron & Spencer No. 1 Frey, NW cor. Sec. 5-30-1e. Drlg. 3,100 ft.

Earl Henderson No. 1 King, NE NE NE Sec. 22-31-4. S.D. 700 ft.

Wabaunsee County

Fowler & Tague et al No. 1 Aye, NW SW NW Sec. 10-12-8. S.D. 300 ft.

Woodson County

Monarch Royalty No. 1 Central Life Ins., SE NW NW Sec. 29-26-14. S.D. 1,175 ft.

M. J. Trott No. 1 Abbott, NW NE NE Sec. 21-25-14e. Drlg. 1,325 ft.

OKLAHOMA

Week Ending November 26

NORTHERN OKLAHOMA

Caddo County

Texas Co. No. 1 Smith, C NE NW Sec. 2-5-12w. T.D. 2,556 ft.; S.D.O.

Cleveland County

Big Chief and Gulf No. 1 Stratiger, NW NW SW Sec. 25-9-2w. T.D. 7,179 ft.; drlg. cmt.

Harper, Turner et al No. 1 Taylor, SE NE NW Sec. 23-8-2w. Rig.

Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w. O.W.P.B.; O.T.D. 7,692 ft.; bailing at 7,655-60 ft.

Coal County

Patsy Oil Co. No. 1 Spence, NW SE SE Sec. 19-2-8. Drlg. 1,450 ft.

Garfield County

Champlin Ref. Co. No. 1 Boehm, SW SW NE Sec. 4-24-8w. Viola 6,595 ft.; dolo. 6,625 ft.; 1st Wilcox 6,658 ft.; dry; 2nd Wlx. 6,690 ft.; F. 417 B.O. and 377 bbls. wtr. in 24 hrs.

Garvin County

H. R. Hollenbach et al No. 1 Butterly, NE NE SE Sec. 22-1n-1e. 3,218,000 ft. gas; drlg. 3,205 ft.; S.D.; repairs.

Grady County

Carter Oil Co. et al No. 1 Smith C-58, C SE SW Sec. 26-5-8w. S.S.O. 5,329-58 ft.; cg. 5,399 ft.

Greer County

S. T. Moore No. 1 Graumann, NE NW NW Sec. 11-5-21w. T.D. 550 ft.; S.D.O.

Hughes County

City of Holdenville No. 1 Fairgrounds, SE SE SE Sec. 13-7-8. S.D. at 1,200 ft.

Homer Doup et al No. 1 Bond, NE NE SW Sec. 7-7-9. S.D. 3,098 ft.

Phillips Pet. Co. No. 1 Mandler, SE SW SW Sec. 1-6-10. No shows; now cg. at 4,401 ft.

Jackson County

Lippert No. 1 Howard, NE SW NW Sec 10-3-19w. O.W.D.D. T.D. 1,510 ft.; S.D.

Kay County

Atlantic O. & R. Co. No. 1 Watson, SE SE NW Sec. 28-28-1w. T.D. 3,701 ft.; open and rec. wtr.; D.&A.

Crawford No. 1 Boehl, SE SE NW Sec 34-27-2w. Drlg. 610 ft.

E. W. Hamilton No. 1 Riddle, NW cor Sec. 3-26-4. Drlg. 3,020 ft.

Gus Little No. 1 Prunty, NE NE SW Sec. 33-28-3. T.D. 319 ft.; 3,200,000 ft. gas; comp.

Tide Water Oil Co. No. 1 Hockman, NW NW NE Sec. 19-28-1. Wlx. 3,288 ft.; Arb. 3,421 ft.; P.B. to 3,322 ft.; rec. S.W. and P.B. to 2,222 ft.

Kingfisher County

Burton Pet. Corp. No. 1 Zerger, C SE SW Sec. 5-18-6w. S.D. at 3,510 ft.; lost cones.

Kiowa County

Crawford & Zelliff No. 1 Kimray, SW SW NW Sec. 36-5-18w. S.D. 354 ft.

R. L. Emerson No. 1 Handcock, SE SE NE Sec. 26-6-15w. Drlg. 485 ft.

Hughes & Reese No. 1 Fultz, SE SE SE Sec. 10-6-18w. T.D. 1,238 ft.; W.O.C.

Lincoln County

Summit Drlg. Co. No. 1 Gordon, NE NE NE Sec. 27-17-2. 1st Wlx. 4,843 ft.; 2d 4,863 ft.; T.D. 4.898 ft. in sd.; D.&A.

Noble County

H. R. Hollenbach No. 1 Mathews, C SW NW Sec. 9-20-1. Viola 5,130 ft.; Wlx. 5,213 ft.; T.D. 5,225 ft.; S.D.O.

Phillips Pet. Co. No. 1-A Robertson, NW NE SW Sec. 29-24-1w. Drlg. 4,342 ft.

Okfuskee County

Lease Inv. Co. No. 1 fee, SE SW SE Sec. 21-13-10. T.D. 3,615 ft.; swb. 100 B.O. and shot; 3,000 ft. O.I.H.; rng. 5-in.

Mead Prod. Co. No. 1 Pine, SW SW NW Sec. 14-12-11. Drlg. 2,660 ft.

Okmulgee County

Jim Wise Drlg. Co. No. 1 Morrow, SW NW NE Sec. 16-15-13. S.D.; wtr. 150 ft.

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. Drlg. 990 ft.

Payne County

Continental Oil Co. No. 1 Donahoe, NW SW Sec. 16-18-2w. 1st Wlx. 5,931 ft.; 2nd 6,007 ft.; T.D. 6.023 ft.; D.&A.

Roy Starr No. 1 McKenzie, SW SW NE Sec. 13-18-3. Fsg. 2,170 ft.

Pittsburg County

Supreme Oil Corp. No. 1 Hickey, NW SW NW Sec. 4-2-15. T.D. 1,040 ft.; S.D.

Supreme Oil Corp. No. 1 Stevenson, SW SW SE Sec. 27-3-14. T.D. 1,300 ft.; M.I. rotary.

Pontotoc County

J. L. Casey No. 1 Pace, SW SW NE Sec. 14-2-7. Drlg. 203 ft.

Jack Lynch et al No. 1-A Parker, SW SW SE Sec. 17-4-8. T.D. 4,572 ft.; P.B. 4,490 ft.; rip in cag.; P.B. 4,060 ft.; S.D.

H. Z. Moore No. 1 Payne, SE NW SE Sec. 16-4-4. T.D. 997 ft.; S.S.O.; S.D.

Union Dev. Co. No. 1-A Abbott, SW NW NE Sec. 34-3-6. T.D. 3,800 ft.; sulfur wtr. from 2,400 ft.

Pottawatomie County

Hall & Briscoe No. 1 Merkle, NW NW SE Sec. 32-8-5. 1st Wlx. 4,385 ft.; 2nd 4,460 ft.; T.D. 4,476 ft.; P.B. 4,386 ft.; P. 56 B.O. in 21 hrs., accumulated oil.

Seminole County

Lesslie Rogers No. 1 Kidd, NE SW SE Sec. 33-10-8. T.D. 200 ft.; S.D.

W. C. Wood No. 1 Aldridge, SW NW NE Sec. 5-8-8. Drlg.

Texas County

Republic Nat. Gas Co. No. 1 Dulabohn,

C Sec. 21-6n-15ecm. Drlg. 2,365 ft.
Republic Nat. Gas Co. No. 1 Judd, CSL SW Sec. 24-6n-15ecm. T.D. 2,870 ft.; gas 7,100,000 ft.

Washita County

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. Drlg. 9,670 ft.
L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. Drlg. iron 2,186 ft.

SOUTHERN OKLAHOMA

Carter County

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. Cg. 2,675-85 ft.; rec. sh.; to run csg.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. Drlg. sdy. L. 1,300 ft.

Cotton County

Jim Turner No. 5 Collins, C NE NE Sec. 18-4s-10w. Drlg. 750 ft.

Tillman County

Smith No. 2 Hammel, NE NW NW 6-5s-15w. T.D. 2,380 ft.; recvd. D.P. and S.D.

ARKANSAS

Calhoun County

Samuel S. Alexander No. 1 Smythe, C NE NE Sec. 7-11-14. Sd., hd. sh.&sd. 3,406 ft.; W.O.
C. E. Murdock No. 1 Southern Kraft Corp., SE cor. NW NW sec. 17-14-13 Top Nac. 2,372 ft.; top Tokio 2,920 ft. S.D. 3,291 ft.

Columbia County

Atlantic Ref. Co. No. 1 Garrett, C NW SW Sec. 13-17-20. Cd. T.L. 7,519 ft.; D.S.T. 2,800 ft.; oil; 200 ft. brksh. wtr. top por. L. 7,548 ft.; D.S.T. 7,604-22 ft.; ¼-in. bttm. ck.; 35 lbs. W.P. 11 min.; set 7-in. csg.; T.D. 7,627 ft.; 7-in. csg. 7,626 ft.; perf. 7,580-7,622 ft.; tstd. 139½ B.O. first; ½-in. ck.; T.P. 1,100 lbs.; comp.; 27 B.P.H.; ¼-in. ck.; T.P. 1,175 lbs.; C.P. 1,225 lbs. and 750,-000 ft. gas.
Pet. Finance Co. No. 1 Barnett, C NW SE Sec. 14-17-20. 16-in. 135 ft.; drlg. L. 3,363 ft.
Pet. Finance Co. No. 1 Garrett, C SW SW Sec. 13-17-20. M.I. rig.
Southwood Oil Co., Inc., No. 1 L. Garrett, C SW SW Sec. 13-17-20. Drlg. sh. 2,300 ft.
Standard Oil Co. of La. No. 1 E. D. Harris, NW cor. NW SE Sec. 15-7-19. Cd. 6,323-39 ft.; full rec. dry; stk. D. S. while going in hole, 6,760 ft.; D.S. loose; drlg. hd. sd. 7,224 ft.
Standard Oil Co. of La. No. 4 McKean, SW cor. NW SW Sec. 8-16-22. Set 9⅝-in. csg. 2,063 ft.; fsg. D.S. 5,956 ft., D.S. recovered; drlg. sd., sh.&strks. L. 6,365 ft.
Standard Oil Co. of La. No. 1 Minnie Harris, NE cor. NE SW Sec. 15-17-19. Drk.
Tide Water Seaboard No. 1 Beene, C SE NW Sec. 15-18-19. Top Cotton Valley 5,887 ft.; cd. 7,000-08 ft.; rec. 4 ft. sd. &sh.; stain oil; cd. 7,020-32 ft.; rec. 1 ft. wtr. sd. and 6 jts. gr. sd.&sh.; no show; cd. S.O. 7,305-10 ft.; drlg. rd. sh. 7,582 ft.

Hot Springs County

John H. James No. 1 Sturgess Lbr. Co., SW cor. SW SE Sec. 24-6-18. R.U.

Little River County

Barbee et al No. 1 Ada Mills, SE cor SW NW Sec. 18-12-29. R.U.
C. & M. Drlg. Co. No. 1 Strawn, SW cor. SE Sec. 20-10-32. Drlg. 250 ft.
Harford Oil Corp. No. 1 Pinning, C NE NE SW Sec. 6-13-30. Fsg. D.S. 1,825 ft.

Lonoke County

Cabot Drlg. Club, Inc., No. 1 Benson Townsite, Sec. 18-4n-9w. Set 4½-in. csg. on pkr. 1,540 ft.; S.D. 2,406 ft.
J. W. Eddington No. 1 Anderson. S.D. 900 ft.

Miller County—Rodessa

Gulf Ref. Co. No. 5 Johnson, SW cor. Sec. 29-15-15. R.U.
F. W. Martin & Co. No. 1 Watts, SE cor. SW NE Sec. 2-20-26. Top anhy. 5,410 ft.; T.M.A. 5,675 ft.; top Hill 6,046 ft.; top Gloyd 6,176 ft.; por. L. 6,222-50 ft.; ran 5-in. csg.; T.D. 6,252 ft.; flwd. 300 B.O. and 75 B. S.W. in 17 hrs; ½-in. ck.; T.P. 125 lbs.; C.P. 1,250 lbs.; 5-in. csg. 6,219 ft.; P.B. 6,210 ft.; drld. cmt. out to 6,235 ft.; tbg. set on pkr.; prod. in 14 hrs., 215 B.O. and 60 B. S.W.; 1-in. tbg. ck.; comp.; 423 B.P.D. oil and 100 B.P.D. S.W.; 1-in. ck.; pkr. set on tbg. 6,215 ft.; T.P. 100 lbs.; T.D. 6,235 ft.; O.T.D. 6,252 ft.
Mrs. S. O. Thompson No. 1 Gen. Am Life Ins. Co., SE cor. SE SW Sec. 20-14-26. Cd. 3,657 ft.; slightly por. sdy. L.; D.S. stk.; T.D. 3,825 ft.; D.S.T. 3,-677-95 ft.; tstd. 15 thribbles S.W.; 8 min.

Mississippi County

Benedum & Trees Oil Co. No. 1 Mack 330 ft. SW cor. NW SW Sec. 2-15n-12e. Top Nac. 2,160 ft.; set 7-in. csg. 2,897 ft.; drlg. hd. L. 3,296 ft.

Nevada County

J. E. Spears, Tr., No. 1 P. T. Phillips, SW cor. SE SW Sec. 18-14-21. 10-in. 40 ft.; S.D., sh. 1,305 ft.
Texas Canadian Oil Corp. No. 2 Stocks, NW SW SE Sec. 9-15-22. Cor. T.D. 1,-395 ft.; 7-in. 1,340 ft.; perf. csg. 1,395 ft.; recmtd. csg. and ripped csg. 1,209-15 ft.; W.O.S.R.; 250 ft. O.I.H.; T. Nac. 1,202 ft.
O. F. Whittaker No. 1 Edwards, Sec. 3-15-20. Cd. brkn. sd.; S.O. 2,030-2,155 ft. set 6⅝-in. csg. 2,030 ft.; W.O.S.R.; 60 ft. F.I.H. 2,155 ft.

Ouachita County

Gulf Ref. Co. No. 5 Johnson, SW cor SE SW Sec. 29-15-15. 6⅝-in. csg. 1,973 ft.; drld. out to 2,030 ft.; pmpg. est. 600 B.P.D. S.W.; slight rainbow oil; T.D. 1,983 ft.; P.B. 2,012 ft.; cmtd. bck. 2,005 ft.; W.O.C.

Pike County

Bruce Wallace No. 1 Tilyeu, NE cor. SE Sec 26-8s-24w. S.D.; D.&A. 392 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW Sec. 2-1s-13e. Drlg. bl. slate 3,972 ft.

Union County—Schuler

Delta Drlg. Co. No. 1 Powledge, SW cor. NW NW Sec. 21-18-17. Top Jones sd. 7,599 ft.; cd. to 7,651 ft. and drld. to 7,686 ft.; 7-in. csg. 7,678 ft.; perf. csg. 7,609-22 ft. and 7,626-31 ft.; no flow; set 2-in. pkr. 7,600 ft.; no flow; S.I. and W.O.; C.P. 1,100 lbs.; T.D. 7,-686 ft.
Fohs Oil Co. No. 1 Craig, C SE NE Sec. 5-18-14. Top Nac. 2,203 ft.; D.S.T. 2-min.; ⅜-in. cks.; rec. 40 ft. drlg. fluid; set 10¾-in. csg. 2,378 ft.; cd. top Tr. Pk. 3,068 ft.; top Crain sd. 3,158 ft.; drlg. rd. sh. 5,583 ft.
E. M. Jones No. 3-B Murphy Ld. Co., SW cor. SE NE Sec. 13-18-18. Drlg. sh. 4,657 ft.
Lion Oil Ref. Co. No. 1 Banks, NW cor SW SE Sec. 12-18-18. Set 10¾-in. csg 1,920 ft.; top Jones sd. 7,579 ft.; cg. 7,619 ft.
Lion Oil Ref. Co. No. 1 Cecil, SE cor., Lot 6, NW Sec. 7-18-17. 16-in. 125 ft.; drlg. sh. 6,810 ft.
Lion Oil Ref. Co. No. 3 Dee, SW NW Sec. 17-18-17. Set 10¾-in. csg. 1,884 ft.; cd. top Jones sd. 7,551 ft.; cg. 7,-597 ft.
Lion Oil Ref. Co. No. 5 Marcus, Sec. 18-18-17. Top Jones 7,511 ft.; cd. top L. 7,607 ft.; T.D. 7,725 ft.; D.S. stk. 7,-713 ft.; fsg. for 3,500 ft. D.S. after backing off 4,200 ft.; cutting out D.S. 7,725 ft.
Lion Oil Ref. Co. No. 6 Marine, NW cor. SW NW Sec. 18-17-17. M.I. larger rig 6,825 ft.
Lion Oil Ref. Co. No. 7 Mayfield, C Lot 2, NW Sec. 18-18-17. Drlg. rd. sdy. sh. 5,957 ft.
Lion Oil Ref. Co. No. 7-A Morgan, C S½ Lot 7, SW Sec. 18-18-17. Top Jones sd. 7,539 ft.; top L. 7,644 ft.; 7-in. csg. 7,-698 ft.; T.D. 7,710 ft.; perf. 7,586-7,608 ft.; comp.; 42 B.P.H.; ½-in. ck.; T.P. 620 lbs.; C.P. 620 lbs.
Lion Oil Ref. Co. No. 3 Nelson, C S½ Lot 6, SW Sec. 18-18-17. Top Jones sd. 7,547 ft.; cd. to 7,634 ft.; 7-in. csg. 7,-650 ft.; T.D. 7,660 ft.; perf. 7,580-7,604 ft.; comp.; 50 B.P.H.; ½-in. ck.; T.P. 400 lbs.; C.P. 500 lbs.
Lion Oil Ref. Co. No. 4 Nelson, SW cor. Lot 5, SW Sec. 18-18-17. 10¾-in. csg. 1,940 ft.; drlg. L. 6,964 ft.
Marine Oil Co. No. 3 Calloway, SE cor. S½ Lot 4, NW Sec. 18-18-17. Drlg. sh. 6,173 ft.
C. H. Murphy No. 1 fee, SE cor. SW NE Sec. 13-18-18. Cd. top Jones sd. 7,534 ft.; cg. 7,633 ft.
Phillips Pet. Co. No. 2 Brian, C S½ NE SE Sec. 13-18-18. 16-in. csg. 178 ft.; W.O.C.
Phillips Pet. Co. No. 3 Brian, NW SE Sec. 13-18-18. 16-in. csg. 191 ft.; W.O.C.
Phillips Pet. Co. No. 1 Edwards, SW NE Sec. 17-18-17. 7-in. csg. 7,704 ft.; perf. 7,628-35 ft.; would not flow and re-perf. 7,626-35 ft.; T.D. 7,740 ft.; re-perf. 7,624-35 ft.; washed and swbd.; would not flow; S.I.; W.O.; C.P. 400 lbs.
Phillips Pet. Co. No. 2 Miller, C N½ Lot 4, SW Sec. 18-18-17. Drlg. sh. 960 ft.
Phillips Pet. Co. No. 6 Sewell, NE cor. Lot 3, SW Sec. 7-18-18. Set 16-in. csg. 190 ft.; W.O.C.
Phillips Pet. Co. No. 7 Sewell, NE cor. Lot 4, SW Sec. 7-18-18. R.U.
Phillips Pet. Co. No. 8 Sewell, SE cor. Lot 4, SW Sec. 7-18-18. R.U.
Phillips Pet. Co. No. 1 J. E. Stratford, SW cor. NW NW Sec. 17-18-17. Set 16-in. csg. 192 ft.; W.O.C.
Sam M. Richardson et al No. 1 B. Francis et al, NW cor. NW SW Sec. 7-17-13. Cg. 3,037 ft.

Union County—Other

E. G. Bradham No. 1 Raulston, C Sec. 12-17-14. Cd. 2,980-90 ft.; sdy. sh.; S.O. cd. 2,996-3,003 ft.; no rec.; cd. 3,003-05 ft.; rec. 6-in. por. sat. sd.; D.S.T. 2,971-99 ft.; 13 min.; ¼-in. bottm. ck.; 125 lbs. W.P.; flwd. 7 min.; will set csg.; T.D. 3,005 ft.; 7-in. csg. 2,972 ft.; drld. out 3,002 ft.; arng. test 3,002 ft.; O.T. D. 3,005 ft.; drld. out to 3,012 ft. and tstd. S.W.; drld. to 3,102 ft.; 5½-in. csg. 3,080 ft.; W.O.C.; T.D. 3,102 ft.
Hollywood & McFarlane No. 6 Scott-Murphy, NW cor. E½ SE NW Sec. 9-16-15. R.U.
Lion Oil Ref. Co. No. 9 Hardy-Murphy, NW cor. NE NW Sec. 9-16-15. Cd. sd.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Ark.-La. Gas Co. No. 1-B Davis Bros. Lbr. Co., NW SW Sec. 7-16-4. 9⅝-in. csg. 2,557 ft.; D.S.T. 5,845-76 ft.; 50,-000,000 ft. gas; open flow; 10 min.; ¼-in. cks. T.&B.; B.M.A. 5,640 ft.; b. stringer anhy. 5,753 ft.; D.S.T. 6,185-6,203 ft.; tstd. 1,530 ft. S.W. 16 min.; ¼-in. cks. T.&B.; top Pettit L. 6,706 ft.; no por.; top Tr. Pk. 7,047 ft.; gas sd.; cd. 7,171-93 ft.; 5½-in. csg. 7,166 ft.; T.D. 7,201 ft.
Producers O. & G. Co. No. 1 Graves & Thomas, SE cor. SW SE Sec. 23-15-10. Set 13⅜-in. 180 ft.

Bossier Parish

W. M. Chambers No. 1 Thomas, SE cor. Sec. 10-22-11. Drlg. L.&sh. 3,085 ft.
H. M. Harrell et al No. 1 Edwards Est. Unit, Sec. 5-17-11. Drlg. L.&sh. 3,900 ft.
Premier Inv. Co. No. 1 McDade, SE SW NE Sec. 28-19-11. T.D. 2,384 ft.; acd. with 1,000 gal.; csg. seat gave away; hole full S.W.; U.R. and cond. hole 2,-384 ft.
J. B. Stovall et al No. 2 Ark. Fuel fee, SE cor. NE SE Sec. 15-19-11. Comp.; pmpg. 10 B.P.D.; T.D. 378 ft.
J. B. Stovall et al No. 4 Ark. Fuel Oil Co. fee, NE SE Sec. 15-19-11. 6-in. csg. 362 ft.; comp.; pmpg. 10 B.P.D.; T.D. 375 ft.
J. B. Stovall et al No. 5 Ark. Fuel fee, SE cor. NE SE Sec. 15-19-11. Set 6-in. csg. 364 ft.; T.D. 365 ft.; tstg.

Caddo Parish

C. L. Ablinger No. 1 Gregory, NE cor. Sec. 3-20-11. 6-in. 960 ft.; W.O.S.R. 971 ft.
C. L. Ablinger No. 2 Gregory, NW cor. NE Sec. 3-20-16. R.U.
R. E. Allison No. 3 Ellerbe, NE cor. Sec. 28-18-14. R.U.
R. E. Allison No. 1 Jones & Mabry Unit, SE Sec. 21-18-14. Drlg. L. 2,250 ft.
Ark.-La. Gas Co. No. 1 Webb, C NW SW Sec. 4-16-13. 9⅝-in. csg. 1,236 ft.; cg. L. 4,817 ft.
Carney et al No. 3 Hart, SE NW Sec. 21-21-16. 10-in. csg. 81 ft.
W. D. Chew No. 6 Stiles, SW NE Sec. 28-21-16. Set 6-in. csg. 1,945 ft.; T.D. 1,954 ft.; tstd. S.W. 1,954 ft. and P.B. 1,944 ft.; drld. out to 1,954 ft.; tstd. S.W.; W.O. 1,954 ft.
Colonial Corp. No. 1 Thigpen-Herold. 330 ft. S and W, C Sec. 34-22-16. Set 9⅝-in. csg. 3,080 ft.; W.O.C.
Paul Cooper No. 2 Stiles, SW SE Sec. 28-21-16. Set 6-in. csg. 1,542 ft.; used 1,500 gal. acd. and tstd. dry; W.O.; T.D. 1,745 ft.
J. P. Driscoll et al No. 1 Woolworth, SE cor. Sec. 26-20-15. Set 16-in. csg. 208 ft.
Eagle Prod. Co. No. 1 Means, SE cor. NE Sec. 9-23-15. Drlg. sh. 1,226 ft.
G. W. Gibson No. 3 Muslow, NW cor. Sec. 6-20-15. Set 7-in. csg. 1,354 ft.
G. W. Gibson No. 4 Muslow, NW cor. Sec. 6-20-15. 10-in. csg. 62 ft.; 7-in. csg. 1,354 ft.
H. C. Prod. Co. No. 1 Kinnebrew & Ratcliff, NE cor. Sec. 5-19-16. R.U.
C. D. Loe No. 1 Meyer, SE cor. Sec. 33-18-14. Top Pettit 5,592 ft.; T.D. 5,628 ft.; perf. 5,602-25 ft. and tstd. S.W.; P.B. 5,611 ft.; 5½-in. csg. 5,627 ft.; T. D. 5,631 ft.; P.B. 5,583 ft.; arng. drill out and perf.
McDonald & Campbell No. 2 Burton, NW cor. Sec. 7-20-15. R.U.
Manziel et al No. 2 Muslow, NW SW Sec. 6-20-15. 6⅝-in. csg. 1,355 ft.; W. O.C.
Manziel et al No. 2 Ramsey, NE cor. Sec. 32-21-15. Set 5⅛-in. csg. 1,341 ft.; T.D. 1,572 ft.; comp.; pmpg. 15 B.P.D. with 2,000 gal. at 1,590 ft.; comp.; pmpg. 15 B.P.D.
Manziel et al No. 3 Ramsey, NE SE Sec. 32-21-15. Set 5⅛-in. csg. 1,348 ft.; acd. with 2,000 gal. at 1,590 ft.; W.O.S.R.
J. F. Mitchell No. 3 Muslow, SE NE Sec. 31-21-15. Drlg. sh. 325 ft.
J. Ober & Sons No. 1 fee, SE cor. Sec. 36-21-16. Set 8-in. csg. 1,431 ft.; tstd. dry 1,684 ft.; set 6-in. csg. 2,257 ft.; tstd. small spray O.&G.; csg. collapsed T.D. 2,279 ft.; S.I.; hole cleaned; 1,700 ft. O.I.H.; W.O.S.R.
Oils, Inc., No. 1 Cazaux, SW cor. Sec. 10-16-13. O.W.W.O.; O.T.D. 3,500 ft.; D.D.
Rodessa O. & R. Co. No. 1 Chandler, C SW NE Sec. 34-18-14. Set 9⅝-in. csg. 2,067 ft.; D.S.T. 2,420-34 ft.; tstd. est. 5,000,000 ft. gas, 9 min.; ⅝-in. cks. T.&B.; rec. 270 ft. S.W.; set 7-in. csg. 5,580 ft.; D.S.T. 5,540-45 ft.; tstd. est. 5,000,000 ft. gas and 250 ft. oil, 10 min.; D.S.T. 5,545-49 ft.; 6 jts. oil, 10 min.; T.D. 5,590 ft.; set 7-in. csg. 5,590 ft.; perf. 5,546-50 ft.; comp.; 408 B.P. D.; ¼-in. ck.; T.P. 1,300 lbs.
Harry Smith No. 1 Sproull, SE cor. Sec. 32-20-16. 5-in. csg. 1,411 ft.; tstd. S.W. 1,910 ft.; P.B. 1,850 ft. and swbg. S.W.
Southern Star Pet. Corp. No. 1 Muslow, SE NW Sec. 17-20-15. Pmpd. S.W.; arng. dpn. 1,880 ft.; S.D. 2,150 ft.
Tri-State Prod. Corp. No. 1 Stiles, SE cor. NE Sec. 28-21-16. Rng. csg. 1,850 ft.
R. W. Williams No. 1 Ark. Fuel, SE SE Sec. 26-21-16. S.D. 980 ft.

Catahoula Parish

Sibley Sabine Oil Co. No. 1 Peck, S½ Sec. 36-10-8e. Drlg. sh. 2,852 ft.

Claiborne Parish

Maritzky & Bibby No. 1 McClung, Sec. 29-21-7. 6-in. csg. 1,819 ft.; T.D. 1,822 ft.; used 500 gal. and swbg. to test 1,902 ft.
E. T. Oakes et al No. 2 Kilgore, C NW SE Sec. 28-21-5. Hd. to slightly por. L. 5,294-5,303 ft.; 5½-in. csg. 5,287 ft.; used 6,000 gal. acd.; swbg. to test; tstd. S.S.O. 5,324 ft.; split csg. 2,600 ft.; cmtd. csg.; swbg. to test 5,324 ft.
Sinclair Prairie Oil Co. No. 9 Langston, SW cor. Sec. 18-21-7. 9⅝-in. csg. 1,-200 ft.; W.O.C. 1,210 ft.

De Soto Parish

S. S. Alexander No. 1-A Stoll, sec. 5-12-16. Set 7-in. csg. 2,705 ft.; acd. with 3,000 gal. and tstd. est. 2,000,000 ft. gas; 400 lbs.; gas exhausted; 1,000 ft. O.I.H., 2,761 ft.; did not pmp. at 2,-761 ft.; drlg. 2,853 ft.
Paul Miller No. 2 Jal Drlg. Co., NE Sec. 5-11-11. Set 7-in. csg. 4,038 ft.; perf. 3,901-14 ft.; C.I.; W.O. gas.; R.P. 1,400 lbs.; O.T.D. 4,205 ft.; perf. csg. 3,901-14 ft.; C.I.; W.O. gas.; R.P. 1,400 lbs.
Tippett Oil Corp. No. 1 Williams, SE cor. Sec. 31-13-11. Set 7-in. csg. 1,165 ft.; drlg. plug 1,177 ft.

Grant Parish

Long & Porter No. 1 Swope, SE cor. NW SE Sec. 18-9-1e. 10-in. csg. 84 ft.; set 6-in. csg. 1,610 ft.; W.O.C.; T.D. 1,625 ft.

La Salle Parish

Pet. Heat & Power Co. No. 3 Richardson, SE cor. Sec. 3-9-1e. R.U.
Tricheli et al No. 1 Gallagher, NW cor Sec. 31-9-2e. Cg. 1,610 ft.

Madison Parish

Continental Oil Co. No. 2 Singer Mfg. Co., C Sec. 2-15n-11e. Set 7⅝-in. csg. 522 ft.; drlg. sh. 3,512 ft.

Red River Parish

N. W. Hunter No. 1 LeLong, NW cor. NW SE Sec. 33-12-10. 10-in. csg. 40 ft.; D.S.T. 1,671-88 ft.; tstd. 575 ft. S. W. 9 min.; drlg. sh.&sd. 2,523 ft.
Magnolia Pet. Co. No. 59 Pugh, Sec. 12 12-11. 8⅝-in. csg. 2,815 ft.; drlg. L. 5,518 ft.
J. C. Prine No. 3 Haynes, SW cor. Sec 20-13-10. 5⅜-in. csg. 2,510 ft.; D.D. 2,-560 ft.; W.O.S.R.
H. B. Schumacher No. 1 Crichton, SW cor. NW Sec. 18-13-10. R.U.

Sabine Parish

Addison & Peterson No. 1 Dew, SE cor SW SE Sec. 22-8-11. Used 1,500 gal. acd. and tstd. S.O. 2,587 ft.; D.&A. 2,-587 ft.
Clyde Creighton No. 1 Bowman Hicks, C NE NW Sec. 3-7-12. Partly R.U. and S.D.
Earl F. Fox No. 1 Cook Ld. Co., SW cor. SE NW Sec. 1-9-12; O.W.W.O. O.T.D. 3,655 ft.; arng. dpn. 3,655 ft.
A. B. House No. 1 Sabine, NW NW Sec. 23-7-14. 8-in. csg. 2,134 ft.; used 7,000 gal. acd.; tstd. dry; cond. mud 3,642 ft.
M. J. Kissick No. 1 J. Newton, NE cor. SE Sec. 1-7-11. Drlg. ch. rk. 2,420 ft.
LeGrande & Brown No. 1 Tatum, NE cor. NW NE Sec. 17-8-13. Tstd. dry 2,-130 ft.; tstd. S.G.; acd. with 1,000 gal.; tstd. dry 2,340 ft.; did not acd.; tstd. S.W.; S.O. 2,340 ft.; 500 ft. O.I.H.; used 3,000 gal. acd.; tstd. S.O. 2,340 ft.; will set short string 4-in. csg. 2,-340 ft.
Major Oil Co. No. 1-C Bowman Hicks Lbr. Co., C SW NW Sec. 34-8-12. R.U.
Major Oil Co. No. 6 Bowman Hicks, C SW SE Sec. 11-7-13. Set 10-in. 82 ft.; set 7-in. csg. 2,196 ft.
Morris Co. No. 1-A Ervine & Bishop, C NE SW Sec. 14-7-13. Set 6-in. csg. 2,-

177 ft.; used 3,000 gal. acd.; tstd. S.O.; W.O. 2,573 ft.

H. L. Nutting No. 1 Williams, SW cor. Sec. 13-7-11. Tstd. dry and arng. dpn. 2,791 ft.

C. R. Schuster No. 1 Mary Garcia, NE cor. NW SE Sec. 15-7-13. T.D. 2,603 ft P.B. 2,585 ft.; tstd. dry S.D.; W.O. 2,585 ft.

Sklar & Neighbors No. 1 Martinez, Sec. 11-7-13. 6-in. csg. 2,172 ft.; used 3,000 gal. acd.; tstd. S.O. 2,312 ft.; top sd. 2,552 ft.; tstd. S.O. and S.W. 2,554 ft.; P.B. 2,410 ft.; W.O.

M. S. Slagle et al No. 1 Chadwick, SW cor. SE NW Sec. 32-8-10. Drlg. sh. 1,600 ft.

C. H. Smith No. 1 Sabine Lbr. Co., NE cor. NW NW Sec. 9-7-13. Set 10-in. csg. 66 ft.

J. L. Spier No. 2 Hale, SW cor. NW SW Sec. 1-7-13. Set 10-in. csg. 44 ft.; 6-in. 2,106 ft.; T.D. 2,110 ft.

Lee Whitehurst No. 2 First Natl. Bnk. C SE NW Sec. 14-7-13. 7-in. csg. 2,212 ft.; tstd. dry 2,301 ft.; used 3,000 gal acd.; tstd.; used 2,000 gal. acd. and W.O.S.R. 2,605 ft.

Swolle Synd. No. 1 Mansfield Lbr. Co. Sec. 8-7-19. T.D. 4,323 ft.; 5-in. csg 3,830 ft.; drlg. plug 4,323 ft.; 2,500 gal acd.; perf. 3,730-70 ft.; tstd. dry; W.O 3,770 ft.; O.T.D. 4,323 ft.; sqzd. off perf.; set short string 4-in. csg. 3,883 ft. and perf. 3,861-70 ft. and 3,880-83 ft.; O.T.D. 4,323 ft.; tstd. S.W.; S.O.; P.B. 3,700 ft. and perf. 2,120-40 ft. and 2,234-60 ft.; swbg. to test; T.D. 2,275 ft.

Tensas Parish

H. V. Schumacker No. 4 Mound Plantation, Sec. 29-11-12e. Rmg. to bttm.; T. D. 2,450 ft.; S.D. for D.S.T. 2,450 ft.

Webster Parish

Hunt Oil Co. No. 9 Babb, C N WSE Sec. 14-21-10. Drlg. sh. 5,387 ft.

Hunt Oil Co. No. 10 Babb, SE cor. Sec. 14-21-10. Set 13⅜-in. csg. 643 ft.

Hunt Oil Co. No. 2 Davis Unit, C NW NW Sec. 24-21-10. Hollw. sd. 5,595-5,603 ft.; set 9⅝-in. csg.; did not test Hollwy. sd.; top Bodcaw sd. 8,187 ft.; top Davis sd. 8,457 ft.; drlg. sdy. sh. 8,495 ft.

Hunt Oil Co. No. 10 Davis, C SE SE Sec. 13-21-10. Hollwy. sd. 5,674-78 ft. and 5,719-27 ft.; 9⅝-in. csg. 5,660 ft.; tstd. small S.O. 6,038 ft.; Hollwy. sd.; drlg. sdy. sh. 7,716 ft.

Hunt Oil Co. No. 1 Sandifer, C NE NE Sec. 4-20-10. No Hollwy. sd.; top "D" sd. 8,534 ft.; S.O. 8,534-50 ft.; "D" sd. 8,537-68 ft.; Bodcaw sd. 8,628-68 ft.; set 7-in. csg. 8,715 ft.; perf. csg. 8,540-65 ft. and tstd. S.W.; will sqz. and retest; T.D. 8,600 ft.; O.T.D. 8,720 ft.; P. B. 8,558 ft. and cmt.; did not hold; perf. 8.533-38 ft. and tstd. S.W.; S.O.; T.D. 8,558 ft.

Magnolia Pet. Co. No. 4 Branton, NE cor. sec. 6-22-9. Lubricated stk. D.S. and fsg. 5,472 ft.

Magnolia Pet. Co. No. 1-C Pardee, C NW NE Sec. 17-23-11. Rmd. and set 9⅝ in. csg. 5,920 ft.; top lower Marine 7,998 ft.; 8,505-10 ft. strks. hd. sd., O. &G. odor; cd. 8,537-39 ft.; 2-ft. sd. gas odor; S.D., hd. sdy. L. 9,604 ft.; rig repair.

North American Oil Consol. Co. No. 4 Stewart-Coyle, C NW SE Sec. 29-21-10. Drlg. sh. 5,075 ft.

Ohio Oil Co. No. 5 Bodcaw, Acct. 5, Sec. 13-21-10. Drlg. L.&sh. 5,700 ft.

Ohio Oil Co. No. 51 Bodcaw Acct. 2, NE cor. Sec. 15-21-10. Drlg. hd. sd. 7,661 ft.

Ohio Oil Co. No. 1 W. Cox, Acct. 2, SE cor. SW Sec. 15-21-10. No Hollwy. sd.; 9⅝-in. csg. 5,714 ft.; top Bodcaw sd. 8,472-8,508 ft.; set 7-in. csg. 8,480 ft.; tstg.; T.D. 8,520 ft.

Ohio Oil Co. No. 8 B. Sydney Hrs., SW cor. Sec. 16-20-10. No Hollwy. sd.; 9⅝-in. csg. 5,670 ft.; drlg. sdy. sh. 6,941 ft.

Oliphant Oil Corp. No. 1 Gray & Stephens. C SE SW Sec. 35-21-10. Top Tr. Pk. 5,882 ft.; Hollwy. sd. 5,975-88 ft.; 9⅝-in. csg. 5,595 ft.; drlg. sdy. sh. 6,220 ft.

Oliphant Oil Corp. No. 2-B Stewart, C NW NW Sec. 4-20-10. No Hollwy. sd.; 9⅝-in. csg. 5,615 ft.; top "D" sd. 8,594 ft., S.W.; drlg. 8,628 ft.

Stanolind O. & G. Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE Sec. 36-21-10. Drlg. sh.&L. 5,475 ft.

Stanolind O. & G. Co. and Hunt Oil Co. No. 1 Pardee-Coffee Unit, C NE NE Sec. 36-21-10. Top Tr. Pk. 5,897 ft.; no Hollwy.; 9⅝-in. csg. 5,944 ft.; drlg. sh.&sd. 7,533 ft.

Stanolind O. & G. Co. No. 1 Webster Inv. Co., C NE NE Sec. 35-21-10. 13⅜-in. csg. 737 ft.; no Hollwy. sd.; top Tr. Pk. 5,680 ft.; 9⅝-in. csg. 5,997 ft.; drlg. sh.&sd. 7,517 ft.

Union Prod. Co. No. 1 Walker Unit, 50 ft. S, C SE Sec. 30-18-8. 13⅜-in. csg. 1,413 ft.; straightening hole 1,561 ft.

Woodley Pet. Co. No. 1 J. O. Couch, C NW SW Sec. 36-21-10. 9⅝-in. csg. 6,485 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk.

Bancroft—Beauregard Parish

Geo. E. Lilly et al No. 1 W. K. Rice, Sec 15-6s-13w. Top gas sd. 7,185 ft.; cg. sd. 7,195 ft.

Republic Prod. Co. No. 2 Columbia Ld. & Tmbr. Co., Sec. 16-6s-13w. T.D. 3,400 ft.; P.B.; sdtrkd.; T.D. 7,360 ft.; 7-in. csg. 7,352 ft. (cor.); perf. csg. 7,294-99 ft.; fsg. for tbg.

Republic Prod. Co. No. 3 Columbia Ld. & Tbr. Co., Sec. 16-16s-13w. Drlg. sh. 5,500 ft.

Republic Prod. Co. No. 3 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. S.D. 805 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 2 State-Bateman Lake, Sec. 21-16s-12e. Loc.

Texas Co. No. 1 Wax Bayou, Sec. 21-16s-12e. T.D. 11,185 ft.; 7⅝-in. csg. 11,126 ft.; P.B. 10,925 ft.; perf. csg. 10,907-20 ft.; tstd. oil and S.W.; set retainer at 10,895 ft.; W.O.C.

Baton Rouge—East Baton Rouge Parish

Geo. Helis et al No. 1 Aztec Oil & Roy. Co., Sec. 41-8s-1w. T.D. 7,375 ft.; rmg.

Wm. Helis No. 3 Duplantier, Sec. 65-7s-1w. T.D. 6,820 ft.; P.B. 6,788 ft.; perf. csg. 6,775-78 ft.; flwd. oil and S.W.; cutting csg.

Wm. Helis No. 2 Harry Nolson, Sec. 36-7s-1w. Drk.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 10 Wilberts, Sec. 66-9s-11e. Cg. sdy. sh. 5,632 ft.

Bayou Bouillon—St. Mary Parish

Transcontinental Oil Co. No. 5 State, Sec. 13-9s-9e. R.U.R.

Bayou Choctaw—West Baton Rouge

La. Crusader No. 4 Schwing, Sec. 29-8s-11e. Drlg. sh. 6,965 ft.

La. Crusader No. 5 Schwing, Sec. 29-8s-11e. 9⅝-in. csg. 2,250 ft.

Bayou Des Allemands—St. Charles Parish

Amerada Pet. Corp. No. 3 St. Charles Ld. Co., Sec. 13-15s-20e. Loc.

Caillou Island—Terrebonne Parish

Texas Co. No. 4 State-Terrebonne Bay, Sec. 19-23s-20e. Loc.

Texas Co. No. 5 State, Sec. 19-23s-20e. T.D. 6,240 ft.; sdtrkd.; T.D. 6,521 ft.; P.B.; sdtrkd.; T.D. 6,672 ft.; P.B.; sdtrkd.; T.D. 6,709 ft.; 7-in. csg. 6,677 ft.; perf. csg. 6,570-90 ft.; tstd. 1,600 lbs. press.; rec. 6 gal. dist.; S.D.

Texas Co. No. 29 State, Sec. 17-23s-20e. Rig.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 26 Sch. Ld., Sec. 16-14s-13w. T.D. 2,465 ft.; 13⅜-in. csg. 2,465 ft.; cg. sd. 5,297 ft.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 3 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. Cg. sd. rk. 7,255 ft.

Sun Oil Co. No. 4 Dibert Stark and Brown Cypress Co., Sec. 70-15s-15e. Bldg. foundation.

Charenton—St. Mary Parish

Commerce Oil Co. No. 2 Pano, Sec. 31-13s-10e. T.D. 6,705 ft.; top sd. 6,693 ft. 7-in. csg. 6,693 ft.; I.P. 23 B.P.H.; 15/64-in. ck.

Edwards & Aber No. 2 Blanchard, Sec. 21-13s-9e. T.D. 1,148 ft.; 5½-in. csg. 1,141 ft.; tstd. S.W.; P.B. 1,132 ft.; perf. csg. 1,125-32 ft.; W.O.S.R.

Edwards & Aber No. 1 Lebland, Sec. 21-13s-9e. Top sd. 1,119 ft.; T.D. 1,123 ft.; tstg.

Kinsley Oil, Inc., No. 1-B Hertel, Sec. 30-13s-9e. Loc.

Kinsley Oil Co., Inc., No. 3 LeBlanc, Sec. 21-13s-9e. Top sd. 1,797 ft.; T.D. 1,804 ft.; P.B. 1,780 ft.; 5-in. csg. 1,776 ft.; I.P. 125 B.P.D.; ¼-in. ck.

Pan American Prod. Co. No. 10 Veeder, Sec. 30-13s-10e. T.D. 1,668 ft.; 7-in. csg. 1,645 ft.; tstd. S.W.; drld. to 3,050 ft.; P.B. 2,250 ft.; T.D. 2,459 ft.; 5-in. csg. 2,454 ft.; tstg.

Peterson Pet. Corp. No. 1 Green Est., Sec. 27-13s-9e. T.D. 50 ft.; W.O. rig.

J. P. Scranton et al No. 1 State, Twp. 13s-9e. Loc.

St. Mary Oil Co. No. 1 Robichaux, Sec. 21-13s-9e. T.D. 1,830 ft.; 7-in. csg. 1,830 ft.; W.O.C.

Convent—St. James Parish

Continental Oil Co. No. 2 Realty Operators, Inc., Sec. 16. Bldg. foundation.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 3 State-Gulf of Mexico. T.D. 5,249 ft.; P. B.; sdtrkd.; T.D. 2,983 ft.; sdtrkd. 1,298 ft.; drlg. sd.&sh. 4,352 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 2-B Community, Sec. 55-10s-2e. T.D. 7,692 ft.; rmg.

Humble O. & R. Co. No. 19 Community, Sec. 31-10s-2e. T.D. 7,280 ft., salt; P.B. 4,596 ft.; sdtrkd.; T.D. 7,717 ft.; rmg.

Humble O. & R. Co. No. 4 Landry, Sec. 34-10s-2e. R.U.

Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 22 State, Sec. 5-22s-16e. 13⅜-in. csg. 2,030 ft.; drlg. sd. 6,928 ft.

Edgerly Field—Calcasieu Parish

R. H. Kean et al No. 1 M. J. Muller et al, Sec. 29-9s-11w. S.D. 2,825 ft.

Union Sulphur Co. No. 1 Ld. Sulphur Mining Co., Sec. 33-9s-11w. T.D. 6,981 ft.; abd.

Fausse Point—Iberia Parish

Texas Co. No. 5 State Lake-Fausse Point, Sec. 35-11s-8e. Drlg. sh. 7,336 ft.

Gibson—Terrebonne Parish

Shell Pet. Corp. No. 6-B Realty Operators, Sec. 17-17s-15e. Drlg. sh. 8,320 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 30 State, Sec. 38-23s-33e T.D. 6,943 ft.; fsg. for D.S.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 1 Erwin, Sec. 14-9s-8w. T.D. 7,053 ft.; 7-in. csg. 7,051 ft.

Grand Bay—Plaquemines Parish

Gulf Ref. Co. No. 1 State-QQ, Sec. 6 20s-19e. 13⅜-in. csg. 1,498 ft.; shaly sd. S.O. 6,083-86 ft.; drlg. sh. 6,565 ft.

Hackberry—Cameron Parish

L. W. Capps et al No. 1 Duhon, Sec. 27-12s-10w. Drlg. sdy. sh. 3,203 ft.

Stanolind O. & G. Co. No. 2 Kaugh, Sec. 28-12s-10w. T.D. 3,050 ft.; P.B.; sdtrk.; T.D. 3,040 ft.; W.O.S.R.

Superior Oil Co. No. 4 Benson, Sec. 30-12s-10w. T.D. 6,668 ft.; 7-in. csg. 6,597 ft.

Superior Oil Co. No. 5 Benson Vincent, Sec. 30-12s-10w. Loc.

Texas Co. No. 16-B State-Hackberry, Twp. 12s-9w. Drlg. sh. 2,102 ft.

Texas Co. No. 24-B State, Sec. 12s-9w. T.D. 8,052 ft.; sdtrkd.; T.D. 8,163 ft.; 7-in. csg. 8,050 ft.; perf. csg. 7,903-16 ft.; tstd. S.W.; P.B. 7,780 ft.; perf. csg. 7,763-74 ft.; W.O.S.R.

Union Sulphur Co. No. 7 Caldwell et al Sec. 37-12s-10w. Drlg. sh.&L. 5,306 ft.

Union Sulphur Co. No. 11 Doiron, Sec. 37-12s-10w. Drlg. sd.&gvl. 1,222 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, Sec. 37-17s-9e T.D. 11,844 ft.; 9⅝-in. csg. 11,631 ft.; drlg. plug.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Adeline Sugar Co., Sec. 39-13s-9e. R.U.

Herton Oil Co. No. 9 Carter, Sec. 38-13s-9e. Drlg. sh.&L. 7,850 ft.

Jefferson Island—Iberia Parish

Texas Co. No. 2 Jefferson Island, Sec. 58-12s-5e. 18⅝-in. csg. 40 ft.; drlg. sd. 593 ft.

Jennings—Acadia Parish

W. T. Burton No. 6 Roboria, sec. 41-9s-2w. 7-in. csg. 6,721 ft.; fsg. tbg.; T.D. 6,997 ft.; sdtrkd. at 6,118 ft.; drld. to 6,178 ft.; sdtrkd. at 6,023 ft.; T.D. 6,732 ft.; fsg.

A. W. Forrester No. 1 Jules Clement, Sec. 46-9s-2w. Drlg. sdy. sh. 2,062 ft.

Glassell & Glassell No. 4 McFarlain, Sec. 41-9s-2w. Drlg. sd.&sh. 4,811 ft.

Glassell & Glassell No. 6 Trushell, sec. 42-9s-2w. T.D. 8,005 ft.; 7⅝-in. csg. 7,973 ft.; T.D. 9,132 ft.; P.B. 7,700 ft.; perf. csg. 7,470-7,570 ft.; I.P. 200 bbls. 12½ hrs.; 12/64-in. ck.

Glassell & Glassell No. 7 Trushel, Sec. 42-9s-2w. Drlg. sd. 914 ft.

Guaranty Oil Co. No. 2 Houssere-Latrielle, Sec. 47-9s-2w. T.D. 1,840 ft.; W. O.S.R.

Gulf Oil Corp. No. 40 Arnaudet, sec. 48-9s-2w. Drlg. sh. 6,811 ft.

Gulf Ref. Co. No. 1 Lamb, Sec. 45-9s-2w. Cg. L. rk. 5,346 ft.

Iles Pet. Co. No. 3 Jennings, Sec. 41-9s-2w. T.D. 2,174 ft.; 6⅝-in. csg. 2,124 ft.

Jolly Pet. Co. No. 2 Crusel, Sec. 41-9s-2w. 16-in. csg. 84 ft.; W.O.C.

Jolly Pet. Co. No. 3 McFarlain, Sec. 41-9s-2w. R.U.R.

L. & L. Oil Co. No. 4 Houssiere Latreille. Sec. 47-9s-2w. T.D. 1,825 ft.; 7-in. csg. 1,817 ft.; drlg. sdy. sh. 1,865 ft.

Ladak Oil Corp. No. 7 Jennings, Sec 46-9s-2w. T.D. 2,435 ft.; P.B. and sidetracked; T.D. 1,737 ft.; tstg.

Ladak Oil Co. No. 8 Jenning Clement, Sec. 46-9s-2w. Loc.

O'Mera et al No. 2 McFarlain, Sec. 41-9s-2w. T.D. 1,625 ft.; 10¾-in. csg. 1,628 ft.; drlg. sd.&sh. 5,143 ft.

Shell Pet. Corp. No. 5 Community, Sec. 40-9s-2w. Drlg. sh. 6,118 ft.

Stanolind O. & G. Co. No. 113 Crowley & Mineral Co., Sec. 48-9s-2w. Drlg. sh. 5,720 ft.

Superior Oil Co. No. 9 Jennings-Haywood, Sec. 41-9s-2w. Drlg. L.&sd. 5,588 ft.

Superior Oil Co. No. 15 Leckelt, Sec. 42-9s-2w. Drlg. brkn. sd. 8,566 ft.

Three Sands Oil Co. No. 2 Clement, Sec 46-9s-2w. 6-in. csg. 1,700 ft.; drlg. sdy. sh. 2,600 ft.

Lafitte—Jefferson Parish

Carter-Perrin & Brian No. 1 Lucien Adams, Sec. 9-17s-24e. Drlg. sh. 10,085 ft.

Texas Co. No. 12 LaFitte, Sec. 20-17s-24e. T.D. 10,145 ft.; oil sd.; 7⅝-in. csg. 10,145 ft.; perf. csg. 10,025-75 ft.; I.P. 1,764 B.P.D.; ¾-in. ck.

Texas Co. No. 4 Madison Realty Co., 17s-24e. T.D. 7,921 ft.; fsg.

Texas Co. No. 1 Sch. Bd., Sec. 16-17s-24e. 13⅜-in. csg. 2,030 ft.; drlg. sdy. sh.&L. 9,020 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 22 State, Sec. 8-23s-18e. T.D. 6,027 ft.; run elec. survey.

Leesville—La Fourche Parish

Lincoln Oil Co. No. 6 State, Sec. 26-21s-22e. T.D. 4,242 ft.; P.B. to 3,742 ft.; I.P. 30 bbls. net oil, 80% S.W.; pmpg.

Texas Co. No. 7 Leeville, sec. 27-21s-22e. T.D. 8,667 ft.; D.S. stk.; sdtrkd.; T.D. 8,436 ft.; sdtrkd.; drlg. sh.&L. 8,116 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Laterre, Inc. Sec. 31-19s-19e. 13⅜-in. csg. 3,174 ft.; drlg. sh. 7,500 ft.

Lockport—Calcasieu Parish

T. C. Markley No. 1 Farquhar (offset Continental No. 1 J. H. Moss). T.D. 6,733 ft.; P.B. 5,300 ft.; 7-in. csg. 5,320 ft.; perf. csg. 4,607-11 ft.; tstd. S.W.; P.B. 4,441 ft.; perf. csg. 3,806-14 ft.; tstd. mud and S.W.; tstd. S.W.; abd.

Lake Long—La Fourche Parish

Fohs Oil Co. No. 6 State-Lake Long, Twp. 17s-19e. 10¾-in. csg. 3,066 ft.; cd. oil sd. 9,365-69 ft.; T.D. 9,482 ft.; 7-in. csg. 9,481 ft.; perf. csg. 9,340-60 ft.; flwd. 84 B.O.P.D.; ¼-in. ck.; T.P. 3,000 lbs.; C.P. 2,800 lbs.; killed to rework.

Fohs Oil Co. No. 7 State-Lake Long, Twp. 17s-19e. Dredge canal.

New Iberia—Iberia Parish

H. Fotiades No. 7 Gulf Ld., Sec. 25-12s-7e. Drk.

Wm. Helis No. 6 Bolivar, Sec. 56-12s-7e T.D. 3,442 ft.; 7-in. csg. 3,408 ft.; I.P. 248 B.P.D.; ¼-in. ck.

Texas Co. No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co. No. 5 Bryant, Sec. 25-12s-7e. Cg. sh. 6,514 ft.

Texas Co. No. 1 Gonsoulin, Sec. 13-12s-7e. Drlg. L.&sh. 8,694 ft.

Texas Co. No. 1 Renaudet et al, Sec. 71-12s-7e. R.U.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 4 Federal Ld. Bnk., Sec. 34-8s-1e. T.D. 7,196 ft.; 7-in. csg. 7,193 ft.

Humble O. & R. Co. No. 5 Federal Ld. Bnk., Sec. 33-8s-1e. Loc.

North Tepetate—Acadia Parish

Atlantic Ref. Co. No. 2 Klumpp, Sec. 12-7s-2w. Drlg. sh. 7,602 ft.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 1 Rene Nezal. Drk.

T. D. Spill No. 1 Gaudet, sec. 4-6s-5e. S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 37 Orleans Lv. Bd., Sec. 23-18s-15e. T.D. 3,138 ft.; rng. 13⅜-in. csg. 3,061 ft.; drlg. sh. 3,620 ft.

Western Gulf Prod. Co. No. 1 Pascale, Sec. 6-18s-27e. Loc.

Western Gulf Prod. Co. No. 1 Sam Treadway, Sec. 6-18s-27e. T.D. 2,952 ft.; rmg.

Western Gulf Prod. Co. No. 1-A Treadway, Sec. 6-18s-27e. Loc.; (cor.).

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 5 State, Sec. 17-19s-17e. Loc.

Gulf Ref. Co. No. 6 State, Sec. 17-19s-17e. T.D. 5,900 ft.; 9⅝-in. csg. 5,880 ft.; W.O.C.

Gulf Oil Ref. Co. No. 7 State, Sec. 18-19s-17e. Drlg. sdy. sh. 1,525 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., Sec. 34-15s-19e. 18⅝-in. csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg. 11,312 ft.; T.A.

Amerada Pet. Corp. No. 3 South Coast Corp., Sec. 34-15s-19e. 11¾-in. csg. 2,698 ft.; T.D. 10,266 ft.; 7-in. csg. 10,262 ft.; perf. csg. 10,132-10,210 ft.; tstg.

Tide Water Oil Co. No. 1-A South Corp Sec. 34-15s-19e. T.D. 10,315 ft.; P.B. 7,350 ft. to test 7,160-7,228 ft.; perf. csg. 7,174-90 ft.; F. 125 B.P.D., ⅛-in. ck.; T.P. 550 lbs.; C.P. 850 lbs

Sorrento—Ascension Parish

Sorrento Pet. Corp. No. 2 White, Sec. 22-10s-4e. 10¾-in. csg. 1,940 ft.; drlg. sh.&L. 5,910 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. No. 2 T. R. S. Farms, Sec. 23-10s-4w. T.D. 10,854 ft.; drlg.; sdtrk. 9,075 ft.; drilled to 9,266 ft.; stuck D.S.; P.B. 8,860 ft.; sdtrkd.; drlg. sh. &L. 9,349 ft.

Gueydan—Acadia Parish

A. M. Barbe No. 1 G. L. Humble, Sec. 27-11s-1w. Drlg. sh. 1,260 ft.

Buckley et al No. 1 Mulvey Irrig. Co., Sec. 34-11s-1w. Top salt 4,792 ft.; T.D. 4,801 ft.; S.D.; abd.

Burton-Sutton Oil Co. No. 1 Valerean-Simon, Sec. 37-11s-1w. Drlg. sh.&L. 7,243 ft.

Starks—Calcasieu Parish

J. R. Turnbull et al No. 5 Industrial Lbr. Co., Sec. 30-9s-12w. Drlg. sh. 456 ft.

Sweet Lake—Cameron Parish

Pure Oil Co. No. 1 Stanolind O. & G. Co. fee lse., Sec. 12-13s-8w. Loc.

Timballer Bay—La Fourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 7,373 ft.; T.D. sdtrkd. hole 6,231 ft.; fsg.; P.B. and sdtrkd. 3,501 ft.; T.D. 6,545 ft.; drld. by jnk. to 6,668 ft.; P.B.; 7-in. csg. 6,651 ft.; top salt 7,224 ft.; T.D. 7,268 ft., salt; P.B. 5,400 ft.; perf. csg. 5,330-40 ft.; tstd. 3,504 lbs. press.; reset screen; would not flow; reset screen; bailed dry; P.B. 5,345 ft.; perf. csg. 5,330-40 ft.; swbd. dry; S.D.

Valentine—La Fourche Parish

Wm. Helis et al No. 4 Valentine Sugars, Inc., Sec. 2-17s-20e. T.D. 7,567 ft.; P.B. 6,765 ft.; drld. out to 6,790 ft.; tstd. oil and S.W. 6,726-95 ft.; P.B. 4,750 ft.

Pan American Prod. Co. No. 2-A Community, Sec. 58-17s-20e. Drlg. sh. 7,552 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 2 Buras Lve. Dist., Sec. 23-21s-30e. 13⅜-in. csg. 1,695 ft.; top salt 3,400 ft.; T.D. 3,463 ft.; P.B.; sdtrkd.; top oil sd. 3,541 ft.; 7-in. csg. 3,619 ft.; perf. csg. 3,547-85 ft.; I.P. 414 B.P.D.; ¼-in. ck.

Tide Water Asso. Oil Co. No. 9 Manhattan Land & Fruit Co., Sec. 26-21s-30e. Driving piling.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Phillip Fontenot, Sec. 44-3s-2e. Drlg. sh. 8,084 ft.

Continental Oil Co. No. 2 Ludeau-Haas, Sec. 44-3s-2e. Drlg. sh.&L. 7,357 ft.

Continental Oil Co. No. 3 Piere McDaniel, Sec. 44-3s-2e. R.U.R.

Continental Oil Co. No. 2 Martha Haas, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 2 N. H. Hirsch, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 2 Petre, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 1 Adam Tate, Sec. 47-3s-2e. T.D. 9,100 ft.; 6-in. csg. 9,100 ft.; perf. csg. 9,075-9,100 ft.; sqzd. with cmt.; W.O.C.

Continental Oil Co. No. 2 Tate-McDaniel, Sec. 44-3s-2e. Drlg. sh. 8,456 ft.

Texas Co. No. 1 fee, Sec. 27-3s-2e. D.S.T. 8,927-80 ft., tstd. 1,100 ft. oil; T.D. 9,124 ft.; 6⅝-in. csg. 9,072 ft.; perf. csg. 8,947-72 ft.; I.P. 100 B.P.D.; 5/32-in. ck.

Texas Co. No. 2 fee, Sec. 27-3s-2e. Loc.

Vinton—Calcasieu Parish

J. M. Donald et al No. 1 Gordon, Benchenstein-Flynn, Sec. 34-10s-12w. T.D. 1,000 ft.; W.O.C.

West Gueydan—Vermilion Parish

Magnolia Pet. Co. No. 1 Adam Comier, Sec. 5-12s-2w. Bldg. drk.

Pure Oil Co. No. 1 Vermilion Irrig. Co., Sec. 41-12s-2w. S.D. 9,865 ft.; abd.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 Racea, Sec. 12-9s-6w. Drlg. sdy. sh. 8,090 ft.

Union Sulphur Co. No. 1 A. H. Thomas, Sec. 12-9s-6w. Drk.

S. LOUISIANA WILDCATS

Acadia Parish

P. D. Freeman No. 2 J. E. Settig, Sec. 17-7s-1w. Drlg. sh. 1,342 ft.

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. Drk.

Western Gulf Prod. Co., Sec. 16-10s-1w. Abd. loc.

Assumption Parish

Humble O. & R. Co. No. 1 Milliken & Farwell Co., Inc., Sec. 79-14s-14e. Drk.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher Moore Lbr. Co., Sec. 14-7s-12w. Top S.W. sd. 8,950 ft.; T.D. 9,890 ft.; abd.

Calcasieu Parish

Humble O. & R. Co. No. 1 Desire-Miller, Sec. 32-11s-6w. Drlg. sh.&L. 6,345 ft.

Humble O. & R. Co. No. 1 S. A. Knapp, Sec. 20-10s-8w. Drk.

David B. MacDaniel No. 2 Sch. Ld., Sec. 16-9s-7w. 15½-in. csg. 46 ft.; 10¾-in. csg. 1,299 ft.; prep. to resume operations.

Cameron Parish

Federal Royalty Co. No. 2 State-Calcasieu Lake, Twp. 13s-9w. Driving piling.

Pure Oil Co. No. 3 Calcasieu Natl. Bnk., Sec. 19-12s-4w. T.D. 6,748 ft.; run elec. survey.

Superior Oil Co. No. 1 John Pradia, Sec. 4-15s-8w. Loc.; (core test).

Iberville Parish

California Co. No. 1 Schwing Lbr. Co., Sec. 96-10s-10e. Dredging canal.

Humble O. & R. Co. No. 1-B A. Wilberts Sons Lbr. Co., Sec. 78-8s-8e. Loc.

La Fourche Parish

Texas Co. No. 1 La Terre, Sec. 1-20s-21e. T.D. 8,898 ft.; 9⅝-in. csg. 8,898 ft.; T.D. 11,135 ft.; 2,609 ft. 6⅝-in. csg. 11,135 ft.; perf. csg. 9,975-10,005 ft.; tstd. 21 stnds. dist.; P.B. 8,600 ft.; drlg. out cmt. to 9,316 ft.; perf. csg. 9,265-90 ft.; tstd. S.W.; made sqz. job; reperf. csg. 9,230-57 ft.; make D.S.T.

Texas Co. No. 1 State-Catfish Lake, Sec. 77-19s-21e. 18⅝-in. csg. 90 ft.; drlg. sdy. sh. 2,531 ft.

Orleans Parish

W. T. Burton No. 2-B Faubourg de Montluzin, Sec. 1-10s-13e. Drlg. sh. 9,230 ft.

W. T. Burton No. 1-B R. E. E. de Montluzin, Sec. 1-10s-13e. Drk.

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. T.D. 8,367 ft.; P.B. 7,775 ft.; sdtrkd. at 7,959 ft.; T. D. 8,165 ft.; 9⅝-in. csg. 8,165 ft.; T.D. 8,241 ft.; tstd. S.W.; D.S.T. 8,135-8,241 ft.; T.D. 9,233 ft.; losing returns.

Plaquemines Parish

Texas Co. No. 1 L.L.&E. Bastian Bay, Sec. 43-20s-28e. Bldg. foundation.

St. Bernard Parish

Gulf Ref. Co. No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. Drlg. sh.&L. 7,400 ft.

Wm. Helis et al No. 1 Mereaux Munez, Sec. 34-12s-12e. Drlg. clay 128 ft.

Vendome Pet. Corp. No. 1 Kenilworth Plantation, Sec. 59-13s-14e. R.U.

St. Charles Parish

Texas Co. No. 1 L.L.&E. Paradis, Sec. 39-14s-20e. Drk.

St. James Parish

Shell Pet. Corp. No. 1 Shexnayder, Sec. 38-12s-15e. Drlg. sh. 927 ft.

St. Landry Parish

Herton Oil Co. et al No. 1 Thistlephlite Lbr. Co., Sec. 60-4s-4e. Well tried to blow out at 7,000 ft.; top Wlx. 10,935 ft.; T.D. 11,220 ft.; abd.

St. Martin Parish

Shell Pet. Corp. No. 1 Hazel Burdin, Sec. 15-14s-12e. T.D. 9,833 ft.; sd. S.O.; D.S.T. 9,823-33 ft.; recovered S.W.; S. S.O.

Texas Co. No. 6 State Lake Mongoulois, Sec. 10-10s-9e. T.D. 9,858 ft.; 7⅝-in. csg. 9,839 ft.; drlg. sd.&sh. 10,121 ft.

Texas Co. No. 11 St. Martin Ld. Co., Sec. 21-8s-7e. Top salt 8,904 ft.; T.D. 9,404 ft.; 7-in. csg. 8,912 ft.; P.B. 7,175 ft.; drld. out to bttm.; P.B. 8,080 ft.; perf. csg. 8,060-70 ft.; tstd. mud, gas and S.W.; sqzd. off perf.; W.O.C.

St. Mary Parish

St. Mary Oil Co. No. 2 L. Herbert, Sec. 31-13s-9e. Drlg. sh. 5,000 ft.

St. Tammany Parish

A. P. Portas No. 1 W. C. Forbes, sec. 33-7s-15e. Drk.

Terrebonne Parish

Texas Co. No. 1 Continental Ld. & Fur Co., Sec. 29-18s-14e. 18⅝-in. csg. 101 ft.; T.D. 10,039 ft.; P.B. 9,852 ft.; trying to sdtrk.

Texas Co. No. 2 State-Coon Point, Twp 23s-14e, 13⅜-in. csg. 1,900 ft.; T.D. 2,851 ft.; S.D. for repairs.

NORTH MISSISSIPPI

Calhoun County

L. C. Lucas No. 1 E. C. Boland, 400 ft. E and 500 ft. S, NW cor. SW Sec. 9-22n-9e. S.D. 751 ft.

S. & O. Properties, Inc., No. 1 G. C. Cooner, SE NE Sec. 12-24n-8e. S.D. 2,300 ft.

Clarke County

Jeremiah L. Ryan No. 1 Eddins, Sec. 29-2n-14e. R.U.

George County

Cleve Love et al No. 2 J. J. Newman Lbr. Co., C SW Sec. 9-1s-8w. S.D. 7,038 ft., red beds.

Harrison County

Big Ridge Oil Co. No. 1 Hingin, Sec. 13-7s-10w. S.D. 2,700 ft.

Hinds County

G. Jefferys No. 1 Gaddis Farms, Inc., NW cor. SE Sec. 26-7n-4w. S.D. 3,448 ft.

Cleve Love et al No. 1 S. F. Johnson NE cor. SE¼ sec. 29-6n-1w. Set 7-in csg. 3,355 ft.; drlg. sh. 5,100 ft.

Montgomery County

Dr. T. H. Chichester No. 1 Mitchell, Sec. 36-20n-7e. Drk.

Pontotoc County

Waldrop et al No. 1 Bray, Sec. 17-11s-1e. S.D. 310 ft.

Rankin County

Love Pet. Co. No. 3 Gulf State Creosote Co., Sec. 36-5n-2e. Drlg. bl. sh. 2,273 ft.; no report.

Simpson County

Cleve Love No. 1 N. E. Garner, SW cor. SW NE Sec. 1-10n-17w. S.D. 27 ft.

Goodwill O. & G. Co. No. 1 Berry, Sec. 33-2n-4e. S.D. 2,810 ft.

FLORIDA

Levy County

Florida Oil Discovery No. 2 Cedar Key Co., Sec. 9-15s-13e. S.D. for csg.; T.D. 3,986 ft.

Nassau County

St. Mary Oil Corp. No. 1 Hilliard, Sec. 19-4n-24e. S.D. 4,575 ft.

Lake County

Union O. & R. Co. No. 1 Gulf Expln., sec. 17-24s-25e. S.D. 235 ft.

Suwanne County

J. W. Phillips Oil Explin. Co. No. 1 Shilkett, Sec. 14-4s-14e. S.D. 50 ft. for csg.

TEXAS

Week Ending November 26

GULF COAST FIELDS

Hastings Field—Brazoria County

H. F. Alexander No. 2 Blumer-Steiner, H.T.&B. Sur. No. 28. T.D. 6,223 ft.; 5½-in. csg. on bttm.; tstg.

Humble O. & R. Co. No. 10 Alexander, H.T.&B. Sur. No. 28. T.D. 5,900 ft.; W.O.C.

Stanolind O. & G. Co. No. 2-C Cecil Brown, W. H. Snyder Sur. Drk.

Stanolind O. & G. Co. No. 6 Froberg, R. A. Magee Sur. Drlg. sh. 5,412 ft.

Stanolind O. & G. Co. No. 9 Surface, A. C.H.&B. Sur. Drlg. sh. 3,937 ft.

Old Ocean—Brazoria County

Commerce Oil Co. No. 1 S. M. Patterson, Polly & Chance Sur. Drlg. sh. 5,067 ft.

Harrison & Abercrombie No. 3 Armstrong Plantation, Polley & Chance Sur. S.D. 8,878 ft.

Harris & Abercrombie No. 4 Armstrong, Polly & Chance Sur. Drlg. sh.&L. 5,816 ft.

Harrison & Abercrombie No. 2 Chenault, C. Breen Sur. T.D. 10,202 ft.; tstg.

Harrison & Abercrombie No. 1 R. D. McDonald, C. Breen Sur. Drlg. sdy. sh. 9,110 ft.

Sun Oil Co. No. 1 Campbell, Chas. Breen Sur. Drlg. sh. 6,039 ft.

Sandy Point—Brazoria County

Stanolind O. & G. Co. No. 1 Sharp, C. S. Corbett Sur. No. 12. Drlg. sh. 8,030 ft.

West Columbia—Brazoria County

General Crude Oil Co. No. 1 Campbell Est., J. H. Bell Sur. Drlg. sh. 6,889 ft.

Mike Hogg No. 5 fee, M. Varner Sur. Drlg. sd.&sh. 1,036 ft.

Texas Co. No. 29 Abrams, G. Tennille Sur. 10¾-in. csg. 1,168 ft.; drlg. sh.& L. 4,720 ft.

Cedar Point—Chambers County

Standard Oil Co. of Tex. et al No. 3-118 State, T.D. 6,005 ft.; 7-in. csg. 5,974 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 5 Acom, H.T.&B. Sur. No. 103. Drk.

Sun Oil Co. No. 1 Tate, H.T.&B.R.R Sur. T.D. 8,634 ft.; P.B. 2,000 ft. to sdtrkd. at 2,609 ft.; T.D. 8,581 ft.; 7-in. csg. 8,581 ft.; W.O.C.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1-38 State (6,000 ft. S of field in Turtle Bay) 10¾-in. csg. 1,212 ft.; drlg. sh.&L. 7,739 ft.

Hitchcock—Galveston County

Maco Stewart No. 10 fee, J. Spillman Sur. R.U.

Wittjen Oil Co. No. 1 Coon, Arthur Burke Sur. Drlg. sh. 4,856 ft.

League City—Galveston County

Mid-States Oil Co. No. 1-A, Maco Stewart, Perry & Austin Sur. Drlg. sh. 8,397 ft.

George Echols No. 1 Maco Stewart-Ross, Lot 3, Perry & Austin Sur. Drlg. sh. 8,367 ft.

George Echols No. 1 Maco Stewart, Perry & Austin Sur. Loc.

West Prod. Co. No. 1 fee, Lot 2, Blk. 5, Perry & Austin Sur. Loc.

Bammel—Harris County

H. M. Lawrence and Geo. Lawrence No 1 C. Ehrkardt, H. Simmons Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 2 Edwards Reels & Trobough Sur. Drk.

Eureka—Harris County

Jack Frazier No. 1 Emma Helberg, J Reinerman Sur. R.U.

Jack Frazier No. 2 Hogg Bros., J. Reinerman Sur. 10¾-in. csg. 2,505 ft.; T. D. 7,762 ft.; cd. sd.; tstd. sw. 7,726-32 ft.; sqzd. perf.; reperf. csg.; tstg.

Houston Oil Co. No. 3 Helberg & Lackner, J. Reinerman Sur. Loc.

Tide Water Asso. Oil Co. No. 1 M. A. Roy, J. Reinerman Sur. R.U.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 1 Ley, J. Waugh Sur. Drlg. sh. 5,890 ft.

Amerada-Stanolind O. & G. Co. No. 1 Munger, P. B. Hamblin Sur. Drlg. sh. 1,510 ft.

Amerada-Stanolind O. & G. Co. No. 2 Peters, W. K. Hamblin Sur. and Hogan Sur. T.D. 7,920 ft.; 5½-in. csg. 7,548 ft.

E. M. Halley No. 1 Albert Brown, J. Clarkson Sur. Loc.

Noble & Baker et al No. 1 A. R. Hillegeist, J. Clarkson Sur. T.D. 6,852 ft.; 5½-in. csg. on bttm.

Union Prod. Co. No. 1 Fritze, Warneke & Lewis Sur. T.D. 6,984 ft.; W.O.C.

Windsor Oil Co. No. 1-A C. D. Ley, G. Ayers Sur. Drlg. sh. 2,837 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 24 Beamer, T. Choate Sur. Drlg. sh. 1,620 ft.

Humble O. & R. Co. No. 16 Gray, Perry & Austin Sur. T.D. 6,055 ft.; W.O.C.

Humble O. & R. Co. No. 8 Herman Hospital, T. Choate Sur. Drlg. 1,500 ft.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 3 Settegast, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Humble O. & R. Co. No. 5 West Prod., T. Choate Sur. Drlg. sh. 1,629 ft.

Cordele—Jackson County

Lewis Prod Co. No. 2 Drushel, I.&G.N. Sur. No. 10. Drk.

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 3 McFaddin, S. A. Pace Sur. 10¾-in. csg. 1,532 ft. T.D. 6,766 ft.; 5-in. csg. 6,028 ft.; P.B. 5,975 ft.; perf. csg. 5,955-66 ft.; made sqz. job; prep. to test.

LaBelle—Jefferson County

Sun Oil Co. No. 4 Broussard-Hebert, B. Blackman Lge. T.D. 8,675 ft.; 7-in. csg. 8,605 ft.; pmpg. wtr. into hole to kill press. in No. 3 Broussard; made sqz. job; dpnd. 8,680 ft.; fsg. for D.P. milling out of csg. 8,466-70 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 5 J. H. Phelan, S. Stivers Sur. T.D. 8,687 ft.; 7-in. csg. on bttm.; perf. csg. 8,404-12 ft.; flwg. dist.; tstg.

Hardin—Liberty County

Fohs Oil Co. No. 1 Tompkins, H. B. Johnton Sur. Drlg. sh. 7,220 ft.

Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.

Humble O. & R. Co. No. 7-A Partlow, H. B. Johnston Sur. Drlg. sh. 7,010 ft.

Shell Pet. Corp. No. 1-B West, A. B. Hardin Sur. R.U.

Texas Co. No. 1 Smith, A. B. Hardin Sur. Drlg. sh. 6,437 ft.

Tide Water Associated Oil Co. No. 4 Cessna, A. B. Hardin Sur. Drlg. sh. 6,520 ft.

Woodley Pet. Co. No. 1 Humphries, F. Hardin Sur. Drlg. sh. 5,110 ft.

North McFaddin—Matagorda County

Ohio Oil Co. No. 1 Carlson, I.&G.N. Sur. No. 2 T.D. 7,729 ft. Recovered 4,560 ft. of oil, 60 ft. of mud and S.W.; T.D. 8,430 ft.; 7-in. csg. 8,430 ft.; perf. csg. 7,759-62 ft. and 7,730-32 ft.; tstd. S.W.; made sqz. job; W.O.C.

Orange—Orange County

Gulf Oil Corp. No. 3 Granger, Wm. Dyson Sur. Drlg. sh. 1,695 ft.

John G. Mayo No 1 Seales, Wm. Dyson Sur. 10¾-in. csg. 1,000 ft.; T.D. 6,176 ft.; 5½-in. csg. 6,176 ft.

Red Bank Oil Co. No. 1 First Natl. Bank, Wm. Dyson Sur. Drlg. sh. 3,897 ft.

Union Prod. Co. No. 1 Lutcher Moore Lbr. Co., J. Dyson Sur. 10¾-in. csg. 1,000 ft.; drlg. sh. 4,212 ft.

Segno—Polk County

Gulf Oil Corp. No. 4 Ragan, I.&G.N. Sur. No. 15. 10¾-in. csg. 2,160 ft.; drlg. sh. 7,510 ft.

Gulf Oil Corp. No. 5 Ragan, I.&G.N. Sur. No. 15. Loc.

Humble O. & R. Co. No. 10-B Kirby Lbr. Co., M. Victor Sur. Loc.

Providence Oil Co. No. 1 Wing, I.&G.N. Sur. No. 14. Drlg. sh. 6,886 ft.

Spurger—Tyler County

Republic Prod. Co. No. 14 Hurd & Hurd Sur. T.D. 7,740 ft.; run 7-in. csg.

GULF COAST WILDCATS

Austin County

Crown Cent. Pet. Corp. et al No. 1 Huebner, Renkestolz Sur. Loc.

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur.

Hoard Exploration Co.

Seismograph Surveys

618 Esperson Bldg.

Houston - - Texas

LEGAL

Pursuant to an order entered in Cause No. 99620-D, styled Lonnie Glasscock vs. T. H. P. Duncan, I offer for sale, as receiver, to the highest bidder for cash, a 20-acre oil and gas lease, Duncan fee, Penn Survey, Gregg County, Texas.

This property has three producing wells, with the possibility of an additional permit.

All bids shall be posted with me, as receiver, on or before January 18, 1939.

For full details and all information concerning the property, communicate with the undersigned.

G. C. Dunn, Receiver
Great National Life Building
Dallas, Texas.

Stephen F. Austin Sur. (Bryan Mound) M.I.M.
Gray, Wolfe and Mayo No. 1 Joe D. Hughes, F. B. Drake Sur. R.U.
Humble O. & R. Co. No. 1 Masterson Geo. Robinson Sur. 13⅜-inch csg. 2,402 ft.; drlg. sdy. sh. 7,802 ft.
Humble O. & R. Co. No. 1 Tuttle, H.T.&B. Sur. No. 67, Lots 51 and 52. Drlg. sh. 7,627 ft.
David B. MacDaniel No. 1 J. E. Rawald, Mary V. O'Donnell Sur. R.U.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D Smith Sur. Loc.

Colorado County

Coyle & Concord No. 4-B Powell, I.&G. N. Sur. No. 45. R.U.

Galveston County

H. C. Cockburn No. 1 O. H. Hardt-Stephen, F. Austin Sur., 2 mi. N of League City discovery well. Drlg. sh. 8,489 ft.
Sun Oil Co. No. 1 R. U. Humphrey, Ruben Barrow Sur. 16-in. csg. 122 ft.; 10¾-in. csg. 2,042 ft.; T.D. 8,206 ft.; run elec. survey; abd.

Harris County

Carroll Oil Co. et al No. 1 N. A. Means. T. J. Green Sur. Drlg. sdy. sh. 6,090 ft.
C. L. Dobbins et al No. 1 Ridgeview Farms, D. Steele Sur. 10¾-in. csg. 840 ft.; drlg. sh. 3,437 ft.
Jack Frazier et al No. 1 W. T. Carter, Talcott Patching Sur. R.U.
Jack Frazier et al No. 1 Joe Hornberger B. N. Cessums Sur. T.D. 5,503 ft.; abd.
Jack Frazier et al No. 1 Griffith, Adams Smith Sur. T.D. 8,348 ft.; run csg. to test Frio sd. 4,074-96 ft.
H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drlg.
Smith & McDannald No. 1 F. Molk, John Gay Sur. 10-in. csg. 1,080 ft.; T.D. 6,522 ft.; fsg.

Jackson County

Chapman Minerals Corp No. 1 Bennett ranch, Valentine Garcia Sur. Drlg. sh. 1,171 ft.
Crosby Drlg. Co. No. 1 John Broughton. Patrick Green Sur. T.D. 7,414 ft.; recovered 1,500 ft. oil; D.S.T. 7,391-7,414 ft.; run csg.

Jefferson County

British American Oil Prod. Co. et al No. 1 Gladys City, J. A. Veatch Sur (SW flank of Spindletop). T.D. 7,382 ft.; P.B. 3,000 ft.; sdtrkd. 3,069 ft.; drld. to 3,528 ft.; tstd. S.W.; abd.
I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two. S.D.
Humble O. & R. Co. No. 2 Jefferson Ld. Co., C. Hillebrandt Sur. M.I.M.
Humble O. & R. Co. No. 13-B McFaddin-State, Sec. 8, 10¾-in. csg. 2,758 ft.
Humble O. & R. Co. No. 1 M. C. Todd. Wm. Carr Sur. T.D. 7,719 ft.; recovered 1,800 ft. P.L.O.; D.S.T. 7,715-19 ft.; 7-in. csg. 7,708 ft.; I.P. 30 bbls. 36.5-grav. oil per hr.; ¼-in. ck.; T.P. and C.P. 1,200 lbs.

Matagorda County

Maja Oil Co. No. 1 Robbins, A. Sheppard Sur. R.U.

Montgomery County

Deep South Pet. Corp. No. 1 Foster Lbr. Co., Prevor Bryan Sur. 10¾-in. csg. 700 ft.; T.D. 7,020 ft.
Housh & Thompson No. 1 E. B. Clary, Wm. S. Allen Sur. T.D. 4,739 ft.; 7-in. csg. 4,736 ft.; flwg. 2 B.F.P.H. by hds., 30% S.W.
H. A. Pennington et al No. 1 F. L. Banker, L. M. H. Washington Sur. R.U.
J. Smith et al No. 1 J. V. Scott. F. A. B. Wheeler Sur. S.D. 380 ft.

Orange County

Sun Oil Co. No. 1 Lutcher-Moore Lbr Co., B. Johnson Sur. T.D. 7,867 ft.; P.B.; sdtrkd.; drlg. sh. 8,390 ft.

Wharton County

Crown Cen. Pet. Corp. et al No. 1 Ruby Babcock, Samuel B. Middleton Sur T.D. 5,514 ft.; P.B. to test sd. 4,430-40 ft.
Humble O. & R. Co. No. 1 Duncan, A. Edgar Sur. 13⅜-in. csg. 2,366 ft.; 9⅝-in. csg. 7,370 ft.; T.D. 8,051 ft.; abd.

S. W. TEXAS WILDCATS

Atascosa County

R. C. Stanley No. 1 Schumann, Simon Malone Sur. No. 1069. T.D. 1,722 ft.; perf. csg. 1,650-75 ft.; S.D.

Bastrop County

Ira Brown No. 1 T. W. Bailey, John Crutchfield Sur. No. 12. Loc.
R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. S.D. 2,150 ft.
A. H. Tarver No. 1 McDuff, Josiah Wilbarger Sur. No. 5. Top Edw. L. 3,202 ft.; T.D. 3,240 ft.; abd.
Paul Texas and Ashby No. 1 J. T. Grizzard, Andrew Graham Sur. D.S.T. 7,088-23 ft.; recvd. 1 thrib. of mud; S. S.O.; 4¾-in. csg. 7,152 ft.; swbg. salty sulfur wtr.; T.D. 7,175 ft. (cor.); P.B. to 7,150 ft.; drlg. plug; tstd. sulfur wtr.; P.B. into csg. to test at 7,165 ft.

Bee County

Aid and others No. 3 Imogene Hall, Geo. Kerr Sur. T.D. 3,574 ft.; 5½-in. csg. 3,574 ft.; tstd. S.W.; abd.
Bunn-Texas Co. No. 2 Sparkman, Asa Walker Sur. T.D. 3,975 ft.; rmg.
Dirks Brothers No. 1 Robertson, J. G. Morrow Sur. T.D. 4,314 ft.; abd.

Bell County

M. M. Gordon No. 1 Steele, Oliver T. Tyler Sur. S.D. 1,201 ft.
G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. Drlg. sh. 613 ft. No report.

Bexar County

M. S. Blackburn No. 1 Miller, Thos. Barwick Sur. No. 324. S.O. 151-225 ft.; T.D. 469 ft.; Doble L.; S.O.; abd.
H. G. Krumm No. 1 Kempf, Samuel McCollough, Jr., Sur. No. 54. Drlg. 227 ft.

Blanco County

D. M. Johnston No. 1 Glasscock, W. W. McDonald Sur. No. 50. 10-in. csg. 150 ft.; S.D. 501 ft.
L. G. Priest et al No. 1 E. B. McCollough, Stephen Jett Sur. Drlg. sh. 695 ft.

Caldwell County

Lincoln Pet. Co. No. 1 Sarah McBane, Francis Berry Sur. Drlg. 1,312 ft.

Calhoun County

Hiawatha O. & G. Co. No. 2 J. J. Roemer, J. Ogesberry Sur. Drlg. sh. 9,839 ft.
Joe Wagner et al No. 1 Florence Lamm, Manuel De Luna Sur. No. 3. R.U.

De Witt County

Richardson et al No. 1 W. D. McCurdy, John Hunt Sur. Will resume drlg.

Duval County

Harry Fansler No. 1 Benavides, El Mesquite gr. R.U.
Magnolia Pet. Co. No. 1 Duval Co. Rch. Co., G.C.&S.F.R.R. Sur. No. 189. T.D. 1,451 ft.; 7-in. csg. 1,441 ft.; recovered 1,100 ft. oil on 40-min. D.S.T.
Magnolia Pet. Co. No. 2 Duval Co. Rnh. Co., G.C.&S.F.R.R. Sur. No. 189. Drlg. sh. 1,150 ft.; no report.
J. J. O'Hern No. 1 S. Benavides, G.C.& S.F.R.R. Sur. No. 169. 10-in. csg. 42 ft.
S. K. & C. et al No. 2 Welder, Nathaniel Tinsley Sur. 10-in. csg. 19 ft.; S.D. 2,054 ft.
Texas Inland Corp. No. 1 Alice Adami, Arnold & Barrett Sur. 47. Abd. loc.
W. A. Wagner No. 1 D. J. Weikel, John H. Gibson Sur. No. 497. R.U. and S.D.

Edwards County

Evans & Love No. 1 Steve Brown, Blk 6, G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

Humble O. & R. Co. No. 1 Houston et al, M. Rips Sur. 10¾-in. csg. 1,300 ft.; tstd. S.W., 130 ft. oil and mud; D.S.T. 5,219-26 ft.; drlg. L. 5,302 ft.
Humble O. & R. Co. No. 1 Schley, Jos. Travaider Sur. No. 174. 15-min. D.S.T. 3,520-51 ft. tstd. no press.; recvd. 175 ft. mud with oil odor and 180 ft. S. W.; 15-min. D.S.T. 3,585-3,617 ft. tstd. 45 ft. of mud, S.S.O.; recvd. 2,500 ft. P.L.O.; D.S.T. 4,720-85 ft.; recvd. 396 ft. sulf. wtr.; D.S.T. Edw. L. 5,271-5,304 ft.; P.B. to 4,800 ft.; 7-in. csg. 4,699 ft.; swbg. 1½ B.O.P.H. plus small amt. of wash wtr. and acd.; P.O.P.; I.P. 21 B.F.P.D., 55% S.W.; pmpg.
Geo. Smith No. 1 Berry, T.C.R.R. Sur. No. 1. T.A.C. 4,445 ft.; cg. chk. 4,450 ft.

Goliad County

J. D. Brock et al No. 1 Dial, Pedro Trevino Sur. Drlg. sdy. sh. 1,133 ft.
J. A. English No. 1 Weiss, Cornelius Litts Sur. T.D. 4,872 ft.; abd.
Steinberge Pet. Corp. No. 1 Albrecht T. Hancock Sur. T.D. 5,313 ft.; 5½-in. csg. 5,313 ft.; perf. csg. 5,238-45 ft.; tstg.

Gonzales County

Hochheim Dev. Trust No. 1 Dubose, E. G. Coffman Sur. 10-in. csg. 37 ft.; S.D. 500 ft.
John Hueners et al No. 1 Bauer, R. E. Brown Sur. S.D. 1,017 ft.

Guadalupe County

Catherine Brown No. 1 Davis, L. A. Patillo Sur. Drlg. 1,550 ft.
Claude Fetty et al No. 1 Ed Felix, Vicente Duran Sur. No. 4. T.D. 865 ft.; abd.
R. Hamil et al No. 1 E. Zuehl, Vicente Duran Sur. No. 4. 10-in. csg. 21 ft.
Joseph Holefield No. 1 Claud Brodnax, John King Sur. R.U.
A. D. King No. 1-A Rosenbrock, Vincente Duran Sur. No. 4. T.D. 1,982 ft.; Buda L.; 6-in. csg. 991 ft.; swbg. and flwg. 3 B.O.P.H.; started showing S.W.; cmtd. off bttm. of hole.
E. H. Robertson No. 1 Alex Forshage, Eligio Gortari Sur. No. 16. Drlg. sh. 378 ft.; no report.
Wellington Oil Co. of Delaware No. 1 Albert Mattke, Wm. H. Smith Sur. No. 62. Drlg. sh. 1,683 ft.
R. A. Williams No. 1 Weber, Guadalupe Torres Sur. T.D. 1,483 ft. (cor.); 4½-in. csg. 1,468 ft.

Hidalgo County

R. E. Hardin et al No. 1 E. M. Car. Hidalgo Co. Canal Subd., Lot 8, Blk 8. T.D. 7,509 ft.; perf. csg. 7,440-65 ft.; tstd. 500,000 ft. gas, 9 bbls. dist.; W.P. 1,700 lbs.; S.I. for storage.
Phillips Pet. Co. No. 1 Flores (deep test N of Samfordyce field). Cmtd. 7⅝-in. csg. 5,847 ft. (protection string); T.D. 9,708 ft.; P.B. to test.
Union Sulphur Co. No. 1 Am.-Rio Grande Ld. & Ir. Co. (Mercedes). Cmtd. 7-in. csg. 8,417 ft.; T.D. 9,618 ft.; 5½-in liner set 8,369-9,618 ft.; tstd. S.W. 9,420-30 ft.; made sqze. job; P.B. 9,390 ft.; perf. csg. 9,372-80 ft.; swbd. S.W and gas; perf. csg. 9,347-52 ft.; tstd. S.W.; perf. csg. 9,255-60 ft.; tstd. S. W.; perf. csg. 9,065-70 ft.; tstd. S.W.; perf. csg. 8,990-9,000 ft.; tstd. S.W.; perf. csg. 8,920-25 ft.; tstd. S.W.; perf. csg. 8,845-50 ft.; flwd. 24 bbls., 51-grav. dist. per day; ⅝-in. ck.; killed to reperf.; sqz. off perf.; prep. to test 8,500-10 ft.; tstd. gas and S.W.; sqzd. perf. csg. 8,480-90 ft.; tstd. gas and S.W.; sqzd.; reperf. csg. 8,075-80 ft., tstd. 450 bbls. fluid, 45 bbls. 22.7 grav oil; sqzd. off perf.; perf. csg. 7,920-25 ft.; tstg.

Jim Hogg County

Humble O. & R. Co. No. 3 Anna Kelsey Bass, San Raphel gr., 3,732 ft. N of Kelsey field discovery well. Recvd. 500 ft. of oil; 25 lbs. press.; D.S.T. 4,700-56 ft.; T.D. 5,380 ft.; 7-in. csg. 5,146 ft.
Johnson & Robinson No. 1 Palacios, Mary Montgomery Sur. Drlg. 486 ft.
Navarro Oil Co. No. 1 Guerra, Santa Teresa gr. (7,000 ft. SW discovery, Kelsey field). Bldg. drk.

Jim Wells County

Tom Graham et al No. 1 Chas. Hirsch, Jacob Stanfert Sur. Drlg. sdy. sh. 3,880 ft.
LaSalle Viejo Oil Co. No. 1 R. Shaeffer, Martin Christian Sur., Sec. 11. T.D. 5,530 ft.; abd.
Magnolia Pet. Co. No. 1 Samuel Mann. Los Olmos y Loma Blanca gr. T.D. 2,005 ft.; run 13⅜-in. csg.
Shell Pet. Corp. No. 1 C. H. Von Blucher, Lucinda Best Sur. T.D. 7,332 ft.; 7-in. csg. 7,332 ft.; perf. csg. 7,327-30 ft.; cg. hd. sd. 7,543 ft.
Transwestern Oil Corp. No. 1 B. H. Dunlap, Sur. 179-181 (1½ mi. SW East Premont field). 18⅝-in. csg. 485 ft.; T.D 5,107 ft.; sdtrkd.; T.D. 5,194 ft.; 8⅝-in. csg. 5,168 ft.; T.D. 6,766 ft.; 7-in. csg. 6,651 ft.; P.B. 5,855 ft.; perf. csg. 5,365-70 ft.; tstd. 1,700 ft. drlg. mud; sqzd. perf.; reperf. csg. 5,365-70 ft.; I.P. 85 B.P.D.; ⅜-in. ck.

Karnes County

M. W. Brown et al No. 1 Yanta, S. G. Hardaway Sur. S.D. 2,778 ft.
Formax Oil Co. No. 1 Pflugger, Erasmus Seguin Sur. S.D. 1,969 ft.
Suttle et al No. 1 McKinney, Luz Navarette Sur. Loc.

Kendall County

Carpenter No. 1 Seidensticker, A. Rodriquez Sur. No. 257. S.D. 518 ft.
C. M. Dewey No. 1 Seidensticker, J. M Cherino Sur. No. 18. S.D. 545 ft.
H. N. Reid No. 1 Marguardt, J. Travuso Sur. No. 150½. S.D. 800 ft.

Kerr County

J. O. Hart et al No. 5-E Jeff Love, J. Martinez Sur. O.W.D.D.; T.D. 5,625 ft.; C.O. hole.
H. G. Starkey No. 1-A Saus, T.W.N.G. R.R. Sur. S.D. 100 ft.

Kimble County

Plateau Oil Co. No. 1 E. E. Bolts, S Jones Sur. T.D. 1,863 ft.; P.B. 1,430 ft.; 7-in. csg. 1,415 ft.; pmpg. 3 bbls. oil, 3 bbls. wtr. 4 hrs.; pmps. off; tstg.
Plateau Oil Co. No. 1 S. J. Davis, A. Mitchell Sur. No. 44. S.D. 960 ft.
Plateau Oil Co. No. 1 Hunger, J. Dujne Sur. T.D. 1,837 ft.; 5½-in. csg. 1,765 ft.; tstg.

Kinney County

Bob Rose No. 2 Gaebler, Dolores Soto de Beales gr. Drlg. sh. 227 ft.
C. B. Wardlaw No. 1 Standart, Meliton Valdez gr. Drlg. L. 1,327 ft.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr 68, Laguna Madre Bay, Lse. No. 528 T.D. 9,350 ft.; sdtrkd. 8,268 ft.; T.D 9,636 ft.; perf. csg. 7,269-78 ft. and 7,248-56 ft.; tstd. gas and S.W.; sqzd. off perf.; W.O.C.

La Salle County

Lake-Tobian Oil Co. No. 1 O'Connor ranch. Blk 35, Bland & Nelson subd. S.D. 2,915 ft.; cleaned hole; prep. to resume operation.

Lavaca County

A. C. McCord et al No. 1 Cora Russek Blk. 33, J. C. Reynolds Sur. (S. of Ezzell). Spd. and S.D.

Lee County

Fred Pederson et al No. 1 Brown. Dav' Hudson Sur. Cd. L., oil odor, 6,100-12 ft.; T.D. 6,410 ft.; run csg.

Live Oak County

R. H. Feltner No. 1 Reed, I.&G.N. R.R Sur. 15. R.U.

McLennan County

Roy Clements No. 1 Carl Horstman, D. C. Walters Sur. S.D. 1,251 ft.; prep. to resume operating.

McMullen County

Scarborough & Bigiane No. 1 Matula Emmitt, Jas. Garner Sur. No. 6. T.D 880 ft.; C.O.
Shumway & Burns No. 2 Shiner, Sec 53 of Shumway subd. of Shiner rnch Rec. 500 ft. S.W.; D.S.T. 1,450-62 ft.; T.D. 1,660 ft.; abd.
Taylor Ref. Co. No. 1 Nueces Ld. & Lvstk. Co., B.S.&F. Sur. No. 115. T.D. 1,444 ft.; abd.

Maverick County

Rio Dev. Co. No. 5 State Bnk. & Trst. Co., G.C.&S.F.R.R. Co. Sur. No. 1. S.D. 45 ft.

Medina County

C. H. Gannon et al No. 1 Saathoff, G. L. Hemeken Sur. No. 833. Drlg. 1,113 ft.
Victor Ziegler No. 1 Paul Haby, Wm. G. Still Sur. No. 1. T.D. 81 ft.

Nueces County

Humble O. & R. Co. No. 1 Michalek, Lots 4 and 5, Sec. 97, Bishop Out Lot subd. Cg. sdy. sh. 6,352 ft.
Seaboard Oil Co. No. 1 Ellen C. Wilson, Jose Vicente Lopez de Herrera gr. Drlg. sh. 6,415 ft.
Stanolind O. & G. Co. No. 1 Geo. R. Clark, Nueces Co. Winter Vegetable Gardens. Drlg. sh. 6,350 ft.
Texas Co. No. 1 E. Little et al, Wm Little Sur. 10¾-in. csg. 1,174 ft.; T.D 7,746 ft.; fsg.; P.B. to sdtrk.; trying to sdtrk. at 5,300 ft.
Trinity Drillers, Inc., No. 1 L. E. Smith, C.E.P.I.&M. Sur., Sec. 6, Blk. "C." Loc.
Union Prod. Co. No. 1 Minnie Brow (Agua Dulce area). Drlg. sh. 12,817 ft.

Real County

Blakely Smith et al No. 1 Love Ranch. H.E.&W.T.R.R. Co. Sur. Drlg. 495 ft. no report.

Refugio County

G. S. I. et al No. 1 Michna, Aldrete 6¼ Lge. Recovered oil; D.S.T. 6,315-29 ft.
G. S. I. et al No. 4 Rooke, Aldrete 6¼ Lge. Drlg. sh. 5,137 ft.
G.S.I. No. 2 Spaulding Aldrete, 6¼ Lge. gr. T.D. 6,356 ft.; perf. csg. 5,896-99½ ft.; I.P. 141 B.P.D.; ½-in. ck.
Hewitt & Daugherty No. 1 Rooke, Aldrete Sur., Sec. 6. T.D. 5,616 ft.; make D.S.T.
Illinois Pet. Co. et al No. 1 C. F. Sasse, Aldrete 6¼ Lge. R.U.
Phillips Pet. Co. et al No. 1 Emilie Paveleck, Aldrete 6¼ Lge. Loc.
Rutherford Oil Corp. No. 1 Neiman, Estaban Lopez Sur. Drlg. sh. 3,197 ft.

Starr County

Circle Oil Co. No. 1 Sabas Olivarez, C. C.S.D.&R.G.N.G. Sur. No. 241. 8⅝-in. D.S.T. 4,560-73 ft.; recvd. 425 ft. oil; 90 lbs. press.; T.D. 4,921 ft.; D.S. T. 4,908-21 ft.; rec. 500 ft. oil; T.D. 5,150 ft.; 7-in. csg. on bttm.
Pistol Hill Oil Co. No. 1 Alvarez, J. J. Guiterrez, Porc. 72. Drlg. sh. 629 ft.
Rhinehart and Bowman No. 1 Bowman, J. C. McCarty Sur. Loc.
Sun Oil Co. No. 2 McKinney, A. J. Smith Sur. No. 242, R.U.
Sun Oil Co. No. 1 N. R. Montalvo, Los Retachez gr., Juan Jose Sais Sur. No. 347. Drk.
Sun Oil Co. No. 1 A. Olivarez, C.C.S.D. &R.G.N.G. Sur. No. 239 (Sun field). 7-in. csg. 5,242 ft.; T.D. 5,709 ft.; perf. csg. 4,905-10 ft.; I.P. 132 B.P.D.; 5/32-in. ck.
Transwestern Oil Co. No. 1 Dallas Jt. Stk. Ld. Bnk., Gavino Silvas Sur. 9⅝-in. csg. 1,439 ft.; drlg. sh. 3,930 ft.

Travis County

Oscar Raesz et al No. 1 I. P. Jones, Rueben Hornsby Sur. No. 17. S.D. 685 ft. abd.

Webb County

Houser & Campbell No. 1 Puig, Edrington subd. of Alberca De Arriba gr. T.D. 2,305 ft.; abd.
O. W. Killam No. 1 A. M. Bruni, Alberca De Arriba gr. T.D. 2,194 ft.; W.O.
Magnolia Pet. Co. No. 1 Duval County School Land. Duval County School Land League No. 101. Loc.
Richardson Pet. Co. No. 1 A. M. Bruni, H.&G.N.R.R. Sur. No. 17. Loc.
R. F. Spear No. 1 Benavides, M. Arispe gr., C Blk. 41. Cg. 2,807 ft.

Williamson County

F. J. Anderson No. 1 Teichelman. Absalam Jett Sur. T.D. 3,498 ft.; abd.
W. O. Caffey No. 1 Fuchs, Francis Bradley Sur. No. 6. S.D. 1,121 ft.
H. H. Coffield and Taylor Ref. Co. No. 1 Caller, H.T.&B.R.R. Sur. No. 7. Abd.
H. H. Coffield and Taylor Ref. Co. No. 2 Caller, H.T.&B. Sur. No. 7. Drlg. sh. 725 ft.

Victoria County

Wellington Oil Co. of Delaware No. 1 Boothe, Indianola R. R. Co. Sur. No 10. S.D. 4,320 ft.

Wilson County

Stapper Oil Co. No. 1 J. McDaniel. L. Manchoca Sur. T.D. 3,200 ft.; fsg.

Zapata County

Joe Martinez No. 1 F. Zaragosa, J. V. Borego gr. Drlg. 1,206 ft.

EAST TEXAS

(Border Counties)

Harrison County

F. H. Barnwell No. 1 Smith, A. P. Hope Sur. Drlg. 1,365 ft.

Marion County—Rodessa

Ark.-La. Gas Co. No. 1 Moseley, Alex. Johnson Sur. Drlg. rd. bds. 4,526 ft.
Bender & Killingsworth No. 2 J.&N.W., Wm. Smith Sur. Cg. L. 6,036 ft.
Cable Tool Drlg. Co. No. 1 Howard, John Hanks Sur. Drlg. L.&sh. 4,985 ft.
Cable Tool Drlg. Co. No. 1 Schellinger,

John Hanks Sur. Drlg. sh.&L. 2,957 ft.
Gulf Prod. Co. No. 2-A Ray, John Hanks Sur. Set 9⅝-in. csg. 1,967 ft.; fsg. for bit and drill collar 5,857 ft.
G. Scott Hammond No. 1 W. S. Ford, C. Grayson Sur. R.U.
Harry Hanbury No. 1 Davis, W. R. Meyer Sur. Drlg. sh. 1,900 ft.
Phillips Pet. Co. No. 2 Henderson, T. Gillespie Sur. Drlg. L.&sh. 4,887 ft.
Shell Pet. Corp. No. 1 Stephenson, G. Perry Sur. 8⅝-in. csg. 1,013 ft.; cg. 5,970 ft.
Texas Co. No. 2 Braden, Jos. M. Fitzgerald Sur. 7-in. csg. 6,011 ft.; T.D. 6,030 ft.
Union Prod. Co. No. 10 Hutchinson, A. D. S. Coy Sur. 9⅝-in. csg. 1,019 ft.; cg., 6,002 ft.

Marion County—Other

Capps Bros. Lbr. Co. No. 2 Stiles, Wall Sur. T.D. 2,394 ft.; gwbd. dry; shot with 2 qts. nitro at 2,334 ft.; tstd. dry; S.D. 2,394 ft.
Geyer Oil Co. No. 6 Vincent, C. Davenport Sur. T.D. 2,408 ft.; tstg.

Sabine County

Hugo Allen No. 1 Brooks, Isaac Low Sur. S.D. 5,885 ft.; W.O.

Shelby County

Redditt & Gray No. 1 Pickering Lbr. Co., Childers Sur. Set 7-in. 5,080 ft.

WEST TEXAS WILDCATS

Andrews County

Olson Drlg. Co. No. 1 Lockhart-Brown 5 mi. W of south end of Fuhrman pool. S.D.O. 4,981 ft.
Texas Co. No. 1-H University, Sec. 4 Blk. 14, Univ. Sur. Drlg. 4,766 ft.
J. W. Tripplehorn No. 1 M. A. Thornberry, Sec. 2, Blk. 42-A. S.D. 4,476 ft.
L. H. Wentz No. 1-L W. F. Cowden, Sec 3, Blk. 43, T.&P. Sur. P.B. 4,428 ft.; tstg.
H. C. Wheeler No. 1 White-Sheltor Sec. 18, Blk. 36-A, P.S.L. Sur. S.D.O. 4,615 ft.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, Sec. 39 Blk. W, T.&P. Sur. S.D. 1,861 ft.

Culberson County

Quito Oil Co. No. 1 Cameron Lbr. Co. sec. 24, Blk. 81, P.S.L. Sur. S.D.R. 945 ft

Dawson County

Daw-Tex. Oil No. 1 J. E. Neely, Sec. 28, Blk. 35, T.&P. Sur. Loc.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N Sur. S.D. 3,508 ft.
Humble O. & R. Co. No. 1 Matador Ld. & Cattle Co., Sec. 26, Blk. 1, Shock & Arnold Sur.; 6,000-ft. test. Drk.

Ector County

Fields et al No. 1 Owenwood, sec. 6 Blk. 44, T.&P. Sur. S.D.O. 4,501 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. S.D. 3 571 ft.

Garza County

Gulf Oil Corp. No. 1 Swanson, Sec. 25 Blk. 2, H.&G.N. Sur. P.B. 7,400 ft.; drlg. plug.

Glasscock County

Crusader Pet., Inc., No. 1 A. D. Neal, Sec. 20, Blk. 33, T.&P. Sur.; 3,200-ft. test. Drlg. 1,370 ft.

Hockley County

The Texas Co. No. 1-B Mallett Lands Lab. 1, Lge. 52, Scurry C.S.L. Sur Flwd. 185 B.O. in 19 hrs.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6. Drlg. 5,160 ft.
Haymon Krupp No. 1 Briggs, sec. 24, Blk 73, Twp. 7, T.&P. Sur. S.D. 5,364 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield. S.D. 3,742 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co. Sec. 151, H.E.&W.T. Sur. W.O.C. 4,450 ft.

Menard County

C. D. Haggerty No. 1 Callon, sec. 36, Jin. Franz Sur. Tools out; making 500,000 ft. gas 1,270 ft.; S.D. 1,270 ft.

Mitchell County

Ajax Drlg. Co. No. 1 Schustes, Sec. 25, Blk. 17, S.P.R.R. Sur. Loc.

Pecos County

J. R. Bell No. 1-C Gulf-Shearer, Sec. 111, Blk. 10, H.&G.N. Sur. Spdg.
O. E. Schade No. 1 Neville, Sec. 72 Blk. 194, G.C.&S.C. Sur.; 2,500-ft. test. Drlg. 1,935 ft.
O. E. Schkade No. 1 Otis Garrett, Sec. 59½, Blk. 8, H.&G.N. Sur. Spdg.
Thomason Prod. Co. No. 1 Notions, Sec. 1, Blk. 105, W. P. Howard Sur. Drlg. 870 ft.
S. Thompson No. 1 Elsinore Cattle Co. Sec. 54, Blk. D, G.C.&S.F. Sur. P.B.; set whipstock 6,904 ft.

Reagan County

John W. Emch No. 1 T.&P. Ld. Trust Sec. 203, Blk. 1, T.&P. Sur. P.B. 2,665 ft.; run tbg.; tstg.

Reeves County

Ohio Oil Co. No. 1 Papham, Sec. 18, Blk. 54, T.&P. Sur. Drlg. 5,425 ft.

Schleicher County

Lone Star Gas Co. No. 1 Bert Page, Sec. 30, Blk. L, G.H.&S.A. Sur. Loc.

Scurry County

Coffield & Guthrie No. 1 First Natl. Bk., Snyder, Sec. 29, Blk. 97, H.&T.C. Sur. M.I.M.
Coffield & Guthrie No. 1 E. E. Spears et al, Sec. 130, Blk. 97, H.&T.C. Sur. Tstg. 2,366 ft.; P.B. depth.

Sterling County

J. W. Sward No. 1 Brennand, Sec. 107, Blk. 2, H.&T.C. Sur. S.D.O. 3,011 ft.

Tom Green County

Spinner No. 1 Reed, Mason Ferry Ranch Sur. W.O.C.; cave 4,948 ft.

Upton County

White & Wilson No. 1 Webb, Sec. 176, Blk. 1, C.C.S.D.&R.G.N.G. Sur. S.D.; csg. 150 ft.

Val Verde County

A. W. Little No. 1 R. W. Sellers, Sec. 34, H.&G.N.R.R. Sur. 1,500-ft. test. S.D.O. 1,200 ft.

Ward County

Herschel M. Jaffe No. 1 Viola Meyers, Sec. 17, Blk. 32, H.&T.C. Sur. S.D.O. 2,538 ft.
Herschel M. Jaffee No. 1-B Viola Myers, Sec. 17, Blk. 32, H.&T.C. Sur. S.D. 254 ft.
Robt. E. Mitchell No. 1 Allen, Sec. 7, Blk. 32, H.&T.C. Sur. Drlg. 430 ft.

Winkler County

S. W. Richardson No. 1-A J. M. Brashara, Sec. 22, Blk. 77, P.S.L. Sur. P.B. 4,019 ft.; H.F.W.
J. R. Sharp No. 2 Sharp-Crume, Sec. 7, Blk. B-2, P.S.L. Sur. Loc.

Yoakum County

J. E. Mabee No. 1 N. W. Willard, Sec. 741. S.D. 4,940 ft.
Shell Pet. Corp. No. 1 J. M. Rutts, Sec. 743. Flwd. 2 B.P.H., 2% oil, 5,266 ft.
S. C. Yingling et al No. 1 Nettie Barrier, Sec. 6. Comp.; D.&A. 5,501 ft.

E. C. TEXAS WILDCATS

Cherokee County

J. R. Bunn No. 1 S. W. Lang, Levi Jordan Sur., 7 mi. S of Rusk. Loc.
C. C. Lanier No. 1 A. T. O'Neal, J. M. Procella Sur., 3 mi. E of Troup. Loc.

Collins County

G. L. Pace Pet. Co. No. 1 E. E. Hooper, J. Rutherford Sur., 2 mi. E of Blue Ridge. Loc.

Falls County

W. H. Mahon No. 1 V. H. Moore, N. K. Robinson Sur., between Lott and Rosebud. Spd. and S.D.

Grayson County

Jim McMurrey No. 1 Dr. T. J. Long, J. Garland Sur., 2 mi. S of Collinsville; 4,000-ft. test. Drlg. 3,510 ft.

Henderson County

Tide Water-Seaboard-Humble No. 1 Sadie Starr McGee, R. Acosta Sur., 3½ mi. NE of Murchinson. Drlg. 4,610 ft.

Houston County

John G. Mayo No. 1 E. C. Lively, S. Rogers Sur., 4 mi. NE of Grapeland. Cg. 5,871 ft.
Wynne Drlg. Co. No. 1 May Price, T. Strother Sur., 4 mi. W of Grapeland. S.D. 500 ft.

Kaufman County

Sam Knoerr No. 1 J. B. Hunter, P. Walker Sur., 5 mi. S of Terrell. Drk.
W. S. McGee No. 1 Pritchett, J. Hendricks Sur., 7 mi. W of Mabank. Set 5½-in. 3,100 ft.; prep. fsg. swb.; H. F.W.
J. F. McLaughlin No. 1 Wood-Nash, J. C. Cortez Sur., ¾ mi. SE of Scurry Drk.

Lamar County

Dahl Bros. & Barr No. 2 McQuiston, R. Russell Sur., ⅛ mi. N of Paris. S.D. 30 ft.

McLennan County

C. E. Porter No. 1 B. D. Burchett, De la Vega Sur., just SE Waco. S.D. 695 ft.
Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. Comp. D.&A. 1,300 ft.

Rains County

McKinley & Hastings No. 1 McTaggert, B. Milder Sur., 1 mi. W of Emory S.D. 30 ft.

Red River County

Bentley-Sheppard & Stevens No. 1 So. Pine Lbr. Co.; G. S. Parks sur.; 17 mi. N of Clarksville. S.D. 71 ft.
Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. D.&A. 630 ft.

Smith County

J. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ½ mi. SE of Jamestown, U.R.; prep. to core.

Trinity County

C. D. Davis No. 1 J. D. Gibson, A. Donavan Sur., 4 mi. NE of Trinity. Gas blow out 148 ft.; W.O.C. 232 ft.

Van Zandt County

W. S. King No. 1 Edna W. Watson, M. G. Whitaker Sur., 5 mi. S of Grand Saline. S.D. 2,600 ft.

NORTH TEXAS WILDCATS

Archer County

Sinclair Prairie No. 1 J. A. Hood, Blk. 18 A.T.N.C.L. Sur. 6⅝-in. cmtd. 4,954 ft.; T.D. 5,180 ft.; P.B. 4,976 ft.; W.O.C.
Thurmond & Lipscomb No. 2 L. F. Wilson, E. Hall Sur. A-682. 6⅝-in. 4,235 ft.; S.S.O. 4,235-46 ft.; tstg., est. 35 B.P.H.
Westmount Oil Co. No. 7 T. J. Dempsey, Sec. 10, D.C.S.L. Sur., O.W.D.D. Perf. csg. 4,139-44 ft.; bailing wtr. and tstg.

Baylor County

British American Oil Prod. Co. No. 1 F. C. Green, T.&N.O. Sur., Sec. 215. Spdg.

Clay County

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12; 6,000-ft. test. 6⅝-in. 5,990 ft.; S.L. 5,994-6,016 ft.; T.D. 6,354 ft.; P.B. 6,069 ft. and shot csg.; treating; acd. 5,794-5,839 ft. through perfs.

Cooke County

Denver P. & R. Co. No. 1 D. B. Allred, De Los Santos Sur. A-894. Drlg. 4,410 ft.
L. C. Heydrick No. 1 F. J. Franklin et al, L. Raney Sur. A-878. Drlg. 2,501 ft.
Sinclair Prairie No. 2 J. M. Best, T. Toby Sur. A-1054. Drlg. 4,405 ft.

Foard County

Helmerich & Payne No. 1 Powers, H.&T.C. Sur., Blk. A. Loc.

Grayson County

O. L. McDougal No. 1 Jackson, H. Coffee Sur., Abst. 204; 4,000-ft. test. S.D. 562 ft.
J. H. McMurray No. 1 T. J. Long, James Garland Sur. A-441. Drlg. 3,670 ft.
C. E. Marshall No. 1 F. Christman, M. Ahalt Sur. A-1427. Drlg. 475 ft.

Jack County

Marion Church No. 1 S. E. McClure, Sec. 2669, T.E.&L. Sur. Drlg. 1,970 ft.
Noah Daves No. 1 K. D. Baker, Sec. 2709, T.E.&L. Sur. 4,000-ft. test. Recem. 10-in. at 90 ft.; S.D.O. 2,320 ft.
Southern O. & G. Co. No. 1 A. Eason, A. D. Kennard Sur. A-328. Drlg. 2,640 ft.

Montague County

Lobban et al No. 1 Henry Payne, Wm. Donoho Sur. A-178. Spd. and S.D.
H. H. Powell No. 1 Arch Durhan, W. J. Wagoner Sur. A-936. S.D.O. 1,800 ft.
Sinclair Prairie No. 1 Hill, Blk. 71, L. C.S.L. Sur. Drlg. 2,020 ft.
Youngblood & Foree No. 1 J. A. Burnett, J. Lenow Sur. A-433. 6⅝-in. 4,139 ft.; S.S.O. 4,139-45 ft.; test. S.W. & show oil; S.D.O.

Wichita County

F. S. Freeland No. 1 J. D. Cooper, H. Hastie A-92; 4,000-ft. test. Spd. and S.D.

Wise County

H. Jackson No. 1 F. Neeley, Blk. 29, Matagorda Co. Sch. Ld. Spud. & S.D.
H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Lds. Plts.

Wilbarger County

Phillips Pet. Co. No. 1 H. C. Shive, Sec. 79, H.&T.C. Sur., Blk. 14. Sat. L. 3,251-62 ft.; S.O.; drlg. 3,690 ft.

Young County

Horwitz & Oldom No. 1 C. J. Taach B, Sec. 248, T.E.&L. Sur. 6⅝-in. 4,113 ft.; S.D.O. 5,090 ft.
Italio Pet. Corp. No. 1 H. M. Donnell, Sec. 4, S.P.R.R. Sur. S.D. 3,395 ft.
Long & Lupton No. 1 A. Crouch, I.&G. N. Sur. A-1460. Drlg. 2,550 ft.
Pitzer-West No. 1 Robt. Bulloch, J. P. Hume Sur., Abst. 140. Drlg. 2,160 ft.
Reichman et al No. 1 L. L. Davidson W. T. Lard, A-1336. Drlg. 3,700 ft.

WEST CENTRAL TEXAS DISTRICT

Brown County

H. P. Evans No. 1 C. M. Kilgore, Robt. Mitchell Sur. No. 141. Drlg. 1,136 ft.
Evans No. 1 J. F. Davis, S. Tull Sur. No. 894. Sp. and S.D.

Callahan County

Dobbs Oil Co. No. 1 Finley, sec. 75, Bayland Orphans Home Ld. Fsg. 1,785 ft.
J. C. Jackson et al No. 1 T. J. Thompson, Sec. 30, B.B.B.&C. Sur. T.D. 1,690 ft.; U.R.

Coleman County

Arcadia Ref. Co. No. 1 W. R. Roberts, D. J. Holt Sur. Fsg. 2,685 ft.
Lynn & Jordan No. 1 Eades, J. West Sur., 7 mi. SW of Santa Anna. S.D. 415 ft.

Comanche County

Comanche O. & G. Co. No. 1 J. E. McGuire, C. Rockefeller Sur. No. 3. Drlg. 2,165 ft.
E. T. DeArman No. 1 Underwood, Sec. 37, D.&D.A. Sur., Abst. 624. T.D. 2,764 ft.; P.B. 2,662 ft.; est. 20 B.O.P.D.; comp.; 40 B.O.P.D.
Loraine No. 1 Carlisle, Sec. 9, Blk. 2, H.&T.C. Sur. M.I.M.

Eastland County

J. F. Baker No. 3 N. T. Mulloy, Wm. Ahrenbeck Sur., Abst. 700. P.B. to Caddo L.
Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. S.D. 1,738 ft.
Hickok P. & D. Co. No. 1 Penn, Sec. 468, S.P. Sur. Drlg. 3,469 ft.

Erath County

Wayne Chandler No. 1 Chandler, J. W. Moore Sur., Abst. 571. Drlg. by bit 2,826 ft.
Collard No. 1 W. L. Payton, H. Pierson Sur. No. 1, Abst. 1105. S.D. 185 ft.

Hamilton County

Wallace & Vickers No. 1 C. C. Lund, J. P. Bailey Sur. 51. Drlg. 1,506 ft.

Haskell County

Roeser & Pendleton & I.T.I.O. No. 1 M.O. Daugherty, Sec. 19, Wise C.S.L. Sur. S.D.O. 4,700 ft.
Sawyer Drlg. Co. No. 1 A. J. Rowland Est., Sec. 5, Blk. 3, H.&T.C. Sur., 18 mi. E of Stamford. P.B. 4,750 ft.; W.O.C.

Jones County

Brown Eagle Oil Co. No. 1 Haynes, Sec. 191, Lemuel Andrews Sur. S.D.O. in sd. 2,283 ft.
Brown Eagle No. 1 Waterson, Andrews Sur. No. 191. T.D. 2,283 ft.; S.D.
S. C. Herring No. 1 B. L. Ellis, 330 ft. fr. N and E lines, SE¼ Sec. 8-15, T.&P. Sur. Loc.
Humble O. & R. Co. No. 1 Sam Lewis, 1 mi. S of Hawley pool, C. E. Dewitt Sur. No. 254. D.&A. 2,695 ft.
S. B. Roberts Co. No. 1 Roy E. Prichard, 205 ft. fr. S L, 2,428 fr. E L, J. E. Cockrell subd. 2, G. Martinez Sur. 195. Loc.
Stiles et al No. 1 Cook, Sec. 89, B.B.B. &C. Sur., western part of county. Rng. csg. 3,415 ft.
Ungreen & Frazier No. 1 Griffin, Sec. 188, B.B.B.&C. Sur. Tstg. est. 200 bbls.; 3,250 ft.; comp.; 543 B.O.P.D.

Nolan County

Chas. E. Peddicord No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. S.D.O. 2,827 ft.
Union Oil Co. No. 1 J. D. Pepper, Sec 51, Blk. 21, T.&P. Sur.; 5,000-ft. test. 6 mi. SW Sweetwater. U.R.; T.D. 2,965 ft.

Palo Pinto County

Goble-More Drlg. Co. No. 1 M. B. Costello. R. R. Williams Sur., Abst. 806 D.&A. 2,550 ft.

Parker County

Bartrug & Burns No. 1 Lankin, Sec. 346, T.&P. Sur. D.&A. 704 ft.
Glen Rose No. 1 H. D. Groves, SW¼ Sec. 350, T.&P. Sur. S.D., T.D. 685 ft.

Shackelford County

Joe DeGrazier No. 1 Harbough, E cen. part of county, Sec. 1563, T.E.&L. Sur. 4,500-ft. test. S.D. 3,894 ft.
R. H. Gordon & Frank Pethybridge No. 1 C. B. Snyder, 330 ft. fr. N and E lines, Sec. 38, L.A.L. Sur.; 4,500-ft. test. Est. 20 to 50 B.O.P.D.; T.D. 3,660 ft.; S.D. 4,293 ft.

TEXAS PANHANDLE

Collingsworth County

Tinsley, White & Knoll No. 1 Frank Knoll, Sec. 62, Blk. 16, H.&G.N. Sur. C.&P.
White No. 1 Wischamper. S.D. 2,263 ft.
Johnson No. 1 Taylor. S.D. 5,650 ft.

Deaf Smith County

Uscan No. 1 Farwell. C.O. 5,050 ft.; T.D. 5,650 ft.

Dickens County

Bond Jones No. 1 Foard, I.&G.N. Sur. Rng. 8¼-in. csg. 3,507 ft., T.D.
Humble O. & R. Co. No. 1 Matador, Sec. 26, Blk. 1, Shock & Arnold Sur. Contract depth 6,000 ft.

Donley County

Robinson No. 1 Kuteman, Sec. 88, Blk. 20, H.&G.N. Sur. Set 6-in. csg. 3,700 ft.

Floyd County

Mills Bennett No. 1 Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. S.D. 5,960 ft.

Gray County

English No. 1 Eudy. S.D. 3,977 ft.
Trippiehorn No. 2 Webb, Sec. 12, Blk. A-9, H.&G.N. Sur. Loc.

Knox County

S. Dolman et al No. 1 C. V. O'Keefe, Sec. 50, Blk. 1. 15½-in. csg. set at 140 ft.; drlg. at 180 ft. last report.

Lipscomb County

M. C. Tieman No. 1 Spangle, Sec. 628, Blk. 43, H.&T.C. Sur. S.D. 1,880 ft.

Potter County

Sinclair Prairie Oil Co. No. 1 Bush, Sec. 23, Blk. 6, B.S.F. Sur., about 3 mi. N of Amarillo; 8,500-ft. test. Drlg. 5,325 ft.

Roberts County

Whitlock No. 1 Cunningham. Drlg. 3,012 ft. (last report).

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Nov. 26. — In North Turner Valley, Home Oil Co. No. 2 Millarville, LSD 6, Section 33-20-3w5, got the Madison limestone at 8,045 feet, and cemented casing at 8,056 feet. The poker-chip shales, overlying the Madison, were unusually thick, and it is anticipated the well will have to go 600 feet or more into the Madison to get production. It got the lime 220 feet lower than Anglo-Canadian Oil Co. No. 1, deepest producer in the South Turner Valley crude area; and is 1,675 feet lower on structure than Royalite Oil Co. No. 29, approximately 1¾ miles to the southeast. Royalite No. 29 and the Model wells are the only crude producers in North Turner Valley. Production at this point will probably insure an important extension of the field as Dr. G. S. Hume of the Geological Survey of Canada some time ago traced the structure for 7 miles north of Home No. 2 location.

Far West Producer

West of the proven South Turner Valley crude area, Anglo-Canadian Oil Co. No. 1, LSD 16, Section 31-18-2w5, finished at 8,222 feet after getting the Madison limestone at 7,790 feet, started with about 500 bbls. of 40.2-gravity crude. It was given two acid treatments, and increased to 718 bbls., with 2,600 pounds bottom-hole pressure and gas-oil ratio of 8,000 feet. Following 24-hour government test it was given a temporary allowable of 306 bbls.

Farther west and south, Okalta Oil Co. No. 6, LSD 3, Section 30-18-2w5, which encountered salt water in the limestone at 10,209 feet, cemented off the lower porous zone preparatory to a swabbing test of the upper lime. Work was delayed by a blizzard, and on swabbing the water after cementing it was found the cement had trapped the tubing. The casing will be shot around 10,000 feet. Fairly good shows of crude were met in the upper porous horizon of the lime while drilling.

Tests Delimit the Field

The salt water encountered in the main porous horizon of the limestone in Okalta No. 6 is the first water struck in the lime in the Turner Valley field, and is regarded as marking the limit of the field to the west. Analysis shows the water to be similar to salt water encountered in the lime on the shallow Highwood structure a mile farther west, and indications were that it was under heavy hydrostatic head. Okalta No. 6 is believed to mark the low point on the Turner Valley anticline to the west. It is about 1¼ miles west, and 2,200 feet lower on structure, than the most westerly crude producers previously drilled. On the other hand the subsequent completion of Anglo-Canadian No. 1, about three-quarters mile north and east of Okalta No. 6, as a good producer, has extended the proven field considerably north and west. The salt water-crude oil line on the Turner Valley west flank lies somewhere between the two wells. Results at Okalta No. 6 have definitely disproved the theory that major faults between Highwood and Turner Valley structure would shut off any salt water intrusion from the former.

Anglo-Canadian No. 1 got the Madison at 7,790 feet, while the shallowest producer, Royalite No. 14, LSD 4, Section 7-20-2w5, got the Madison at 3,220 feet. The Anglo-Canadian increased the proven naphtha-crude productive closure by 250 feet to more than 4,550 feet, claimed to be the largest productive closure of any known oil field.

Completion of Anglo-Canadian No. 1 increases the estimated crude potential of the field to 59,914 bbls. a day, with allowable production of 12,294 bbls.

Tests in the Lime

In Section 32-18-2w5, Davies Petroleums No. 4, LSD 10, finished at 7,236 feet after getting the Madison at 6,776 feet, has an allowable of 316 bbls. a day. West Turner Petroleums No. 3, LSD 6, same section, is deepening below 7,500 feet, after getting the Madison at 7,390 feet and cementing 10 feet in.

In Section 5-19-2w5, West Central Turner Valley, Royalite Oil Co. No. 34, LSD 7, is below 7,259 feet after getting the lime at 6,919 feet and cementing at 7,039 feet.

In Section 29-18-2w5, Command Oils No. 1, LSD 14, got the Madison at 7,406 feet and cemented at 7,426 feet. It is deepening below 7,670 feet, and is expected to be the next completion.

In Section 20-18-2w5, Producers Crude Corp. No. 1, LSD 11, got the Madison lime at 7,585 feet and cemented casing at 7,595 feet.

Royal Canadian Operations

Shareholders of Royal Canadian Oil Co. elected the following directors: A. J. MacWilliam, W. Maughan, D. Austin Lane, Calgary; J. D. McPhee, Harold S. Keenleyside, Scott Keenleyside, R. J. Cliff, Vancouver. Royal Canadian No. 2, LSD 4, Section 16-18-2w5, recently completed in the lime at 7,195 feet, has an allowable of 468 bbls. a day.

Device Saves Gas

Experiments conducted at Westside Royalties No. 1 producer, LSD 3, Section 21-18-2w5, indicate possibilities of substantial reductions in oil-gas ratios in the crude area. A cylinder, 345 feet long, is lowered to the bottom of the well, and valve at the top closed for 54 minutes, during which the cylinder filled with oil and pressure was built up. The valve was then opened, the pressure clearing the cylinder in approximately six minutes. As a result, gas pressure is released for only six minutes in each hour, instead of continuously, with a resulting drastic reduction in gas wastage. The gas-oil ratio at Westside No. 1 has been reduced from 13,000 to 4,272 feet. Experiments are being continued with a view to further gas savings. Westside Royalties is one of the R. A. Brown, Sr., group of companies.

West Side Drilling

In Section 17-18-2w5, Extension Royalties No. 1, LSD 14, is in the Blairmore formation below 6,841 feet. Anglo-Canadian Oil Co. No. 3, LSD 10, is in the Blairmore below 6,366 feet.

North Turner Valley

In North Turner Valley, Royalite Oil Co. No. 35, LSD 7, Section 27-20-3w5, is in the Kootenay formation below 6,216 feet, and getting close to the Madison limestone.

New Tests Planned

In the northwest extension of the West Central Turner Valley area, Lethbridge Petroleum & Refining, Ltd., is arranging for its No. 2 test in LSD 8, Section 24-19-3w5. Location is one-half mile due north of Sun Ray Petroleum Corp. No. 1, and about 2 miles northwest of Vulcan-Brown No. 1 producer. Test is in line with Anglo-Canadian Oil Co. No. 1 producer, but is expected to get the Madison at somewhat shallower depth.

In Section 32-18-2w5, George Harris and associates No. 2 has been spotted in LSD 15, west of Royalite No. 28 and northeast of Royalite No. 30 producers. Arrangements have been made with National Petroleum Corp. for pooling two 20-acre holdings for the test and rotary outfit from National No. 2 will be used. In Section 9-18-2w5, Harris No. 1, LSD 13, has secured permission from the conservation board to drill 420 feet from the west line and 380 feet from the north line, to avoid the Highwood River. Cellar has been dug and rotary outfit from Royal Canadian No. 2 is being moved to location. Snyder & Head will handle the contract.

East Side Drilling

On the Calling Valley structure east of Turner Valley Sentinel Oil Co. No. 1, LSD 15, Section 8-20-2w5, is in the cardium sandstone below 7,300 feet, with considerable oil saturation. The same horizon in McLeod Oil Co. No. 1, LSD 4, Section 6-21-2w5, on the New Valley structure, about 5½ miles to the north, showed a small commercial production.

On the Aldersyde structure, Ranchmen's Oil Co. No. 1, LSD 16, Section 13-20-29w4, bottoming at 7,230 feet, is cleaning out preparatory to deepening.

Southern Foothills

On the Highwood-Sinclair structure southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, Section 34-17-3w5, is in a crystalline lime horizon below 6,365 feet, more than 1,005 feet below the Madison contact. J. & J. Syndicate No. 1, LSD 9, Section 12-16-3w5, has derrick up.

On the Watson structure, Mar Jon Oil Co. No. 3, LSD 3, Section 4-20-2w5, is below 6,140 feet.

On the Savannah Creek structure, Anglo-Canadian Oil Co. No. 1, SW Section 20-14-4w5, is rigging diamond drill outfit.

In the Pincher Creek area, Anglo-Canadian No. 1 Castle River, LSD 4, Section 11-6-1w5, is below 710 feet. Location is about 4 miles east of Weymarn Petroleums No. 2, which got good shows of light crude above the lime.

Border Fields

In the Taber field, southern Alberta, Plains Petroleum Corp. No. 4, LSD 15, Section 25-9-17w4, got the Madison lime at 3,515 feet, encountering some sulfur water at the contact. It is waiting for an underreamer and will probably deepen in the lime. Plains No. 2 producer has shipped an aggregate of 12,500 bbls. and is maintaining steady production.

East-Central Alberta

In the Vermilion district, east-central Alberta, Wain Town Gas & Oil Co. No. 1, LSD 16, Section 26-50-7w4, is down 2,100 feet after drilling through a series of gas horizons. Water seepages were also encountered. It is planned to run casing for water shutoff and gun-perforate in the various sands for gas production, which will be marketed to the town of Vermilion.

On the Battleview structure, in the Wainwright field, Pacalta Oils No. 1 halted at 2,409 feet, just above the Devonian limestone, after passing through several hundred feet of oil sand and developing a gas flow estimated 30,000,000 feet a day. Some water intrusion developed and the hole will be let stand till spring when U. S. experts will be secured to deal with it. Battleview Oils, drilling on a sublease from Pacalta Oils, has a test standing at 1,875 feet with a good gas production indicated.

Lloydminster Field

In the Alberta end of the Lloydminster field, Lloydminster Royalties No. 1, located just west of the Alberta-Saskatchewan boundary and 1 mile south and west of Lloydminster, has spudded for a deep test of the limestone formation. The outfit is capable of going 6,000 feet and Lloydminster gas is used for fuel.

Ontario Drilling

Andrew Heal and Sam Burchall No. 2, S. Birchall farm, Lot 27, Concession 5, finished at 378 feet in the upper lime with around 75 bbls. a day flush production. Location is about 100 yards north of No. 1, also a top show producer, which started with a flush of 110 bbls. and is reported holding up at about 50 bbls. a day. In the first month No. 1 pumped about 1,500 bbls.

In the west end of the field, Dale, Fairbanks, Pollard & Hussey No. 1, William Wood farm, Lot 21, Concession 4, drilled by Gerry Hussey, has had some trouble with gas pressure, but is pumping about 20 bbls. a day. Across the road, McCallum, Corey & Bullen No. 1, Mrs. Lillian Chambers farm, Lot 22, Concession 5, drilled by W. J. Hussey, is reported to have started around 30 to 40 bbls. a day.

In the east end of the field, a test drilled by George Willetts for Douglas Banks of Toronto on the James A. Brush farm, Lot 30, Concession 5, finished dry at 510 feet.

Bert Wilson and George Sullivan have moved the heavy-duty standard outfit used in the McIntosh deep test at Petrolia to the George Bowie farm, E half Lot 24, Concession 12, Brooke Township, where a deep test will be drilled to 2,000 feet or more. This location is the most southerly yet made, and close to the short-lived Brooke shallow field opened a few years ago.

The Bothwell shallow field in Kent County is reported to be showing a higher production than in many years, as a result of some new drilling and the reconditioning of old wells. Some years ago a number of old wells were checked over and reopened, at which time the year's deliveries of crude were between 45 and 50 tankcars. Deliveries this year have reached 155 tankcars, and are expected to reach 180 before the end of December.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending Nov. 26 High	Week ending Nov. 26 Low	Week ending Nov. 26 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Com. sh. earn. 1937	Com. sh. earn. 1936	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
78	55	71⅝	70½	71¼	Amerada Corp.	788,675	N.P.	50cQ	10-31-38	$3.04	$2.52	$.200	114⅞	51½	126½	75
27⅜	17¾	23	22⅛	21½	Atlantic Refining	2,663,999	$25	25cQ	12-15-38	3.51	2.59	1.00	37	18	35⅛	26⅝
23¾	12⅛	20¼	19⅜	19½	Barber Asphalt Co.	390,223	$10	75c	12-16-37	1.91	1.14	1.00	43⅜	10⅛	38½	21
23⅛	10⅛	17¾	17	17⅛	Barnsdall Oil Co.	2,250,344	$5	25cQ	11-1-38	0.85	1.01	1.00	35¼	10	28¼	14⅛
10¾	7	8⅞	8⅝	8⅝	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	11-15-38	1.48	1.18	.80	17⅝	7	17¼	11⅛
35⅝	21¼	30⅛	29¼	29¼	Continental Oil of Delaware	4,682,583	$5	25cQ	12-20-38	2.98	2.05	1.50	49	24	44⅞	28¼
9¾	5	8¼	7⅛	7¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	0.94	—0.03	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	16	15½	15⅝	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-38	2.86	2.57	1.50	35⅝	14	30⅞	17¼
17¾	10⅝	13¾	13½	13½	Mission Corporation	1,382,945	$10	$1	6-29-38	1.31	0.48	1.25	34	15	29⅞	16⅜
23	12½	18¼	17⅛	17⅛	National Supply	1,155,170	$10	$2 pf 1	12-22-37	4.90	2.02	(‡)	41⅜	17⅝	75½	19⅝
14⅞	8⅞	10	9½	9½	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	1.30	0.70	1.00	22⅞	8	18	12⅛
15⅞	10¼	11⅝	11½	11½	Pacific Western Oil	1,000,000	N.P.	50c	12-20-38	1.39	1.58	.75	29¾	11⅜	23½	11⅜
9¼	6¼	6⅝	6¼	6⅜	Pan American Pet. & Trans.	4,702,945	$5	$1*	12-21-37	1.18	0.52	1.00	17⅛	7	20⅝	12¼
44⅜	27¼	41	39⅝	40¼	Phillips Petroleum	4,449,052	N.P.	50cQ	12-1-38	5.42	4.02	2.75	64	30⅛	52⅜	33⅛
25⅜	15	22⅜	21½	21⅝	Plymouth Oil Co.	1,029,800	$5	35cQ	9-30-38	2.85	1.65	1.65	29⅞	13	27⅜	11⅞
13½	8¼	10⅜	10	10⅛	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	2.15	1.63	.25	24⅜	8⅜	27⅞	16
8⅞	5	9⅛	7¾	8¾	Richfield Oil Corp.	3,896,638	N.P.	50c	12-21-38	0.35	....	.25	6½	4½	..	..
27½	15½	21⅞	20¾	20¾	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	12-15-38	1.97	2.00	1.00	54⅛	16	44	30⅛
18⅜	10	14⅞	14¼	14⅞	Shell Union Oil	13,070,625	N.P.	35c	7-15-38	1.44	1.57	1.00	34⅝	14⅞	28¼	14⅝
34⅜	18½	27½	26	26	Skelly Oil	1,003,949	$15	50c	12-15-38	6.07	4.42	1.50	60⅝	26½	47⅝	19½
16⅜	10⅜	13⅞	13	13½	Socony-Vacuum	31,151,071	$15	25c	9-15-38	1.82	1.38	.80	23¼	13	17½	12½
34⅞	25⅛	28¼	27	27⅝	Standard Oil of California	13,014,754	N.P.	35cQ†	12-15-38	3.17	1.79	2.00	50	27⅛	47⅝	35
35½	24⅜	27⅞	27	27¼	Standard Oil (Indiana)	15,267,030	$25	25cQ	12-15-38	3.66	3.09	2.30	50	26½	48½	32⅝
50⅛	32½	50	50	50	Standard Oil of Kansas	112,837	$10	$2	12-8-38	6.93	1.91	5.00	43	30⅝	31	25
58⅜	39¾	52⅞	51¼	51½	Standard Oil of New Jersey	26,224,767	$25	50c§	12-15-38	5.64	3.73	2.50	76	42	70⅝	51⅛
59	45	57	54½	55	Sun Oil	2,316,484	N.P.	25cQ	12-15-38	3.86	3.25	$1 & 8% stk.	77½	44½	91	70
4¼	1⅜	3½	3¼	3¼	Superior Oil Corp.	1,388,079	$1			0.32	0.14		7⅜	1½	6⅜	3
49⅝	32⅝	44¼	43⅛	43⅜	Texas Corp.	10,875,006	$25	50cQ	1-5-39	5.02	4.10	2.25	65⅛	34⅜	55¼	28⅞
5¾	2⅝	5	4¾	4¾	Texas Gulf Producing Co.	888,138	N.P.	15c	12-15-38	0.68	0.93	.10	9⅝	2	8⅞	4⅝
12½	7	10⅛	9⅝	9¾	Texas Pacific Coal & Oil	888,237	$10	10c	12-1-38	1.11	0.72	.40	16⅝	5⅝	15¼	7⅛
15¾	10⅛	13⅜	12⅞	13	Tide Water Associated	6,369,175	$10	25cQ	12-1-38	2.08	1.03	1.20	21⅝	13⅛	21⅜	14⅝
22½	17½	19⅛	18⅝	18¾	Union Oil of California	4,666,270	$25	30cQ	11-10-38	2.58	1.40	1.40	28¼	17½	28½	20⅝
23½	20	21½	21	21	Union Tank Car Co.	1,200,000	N.P.	30cQ	12-1-38	1.70	1.76	1.60	31½	22	31⅝	22⅝
3½	1⅝	3⅜	3	3⅛	Wilcox Oil & Gas	506,522	$5	..	5-10-28	0.24	—0.06	....	6¼	1⅜	5¼	2⅜

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend.

New York Curb Exchange

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11¾	5	9⅝	9⅜	9⅜	American Republic Corp.	1,308,049	$10	10c	7-11-38	$0.27	$0.28	$0.40	10	6⅝	..	..
10¼	4⅞	7⅝	7	7	Bridgeport Machine Co.	260,000	N.P.	$1.25	12-30-37	1.90	1.26	2.00§	21⅜	7	21	13¼
39	24¼	28¼	27½	28¼	Buckeye Pipe Line Co.	200,000	$50	50c	12-15-38	4.02	4.40	3.75	51½	36	50	39⅝
117½	97	117½	117½	117½	Chesebrough Mfg. Co.	120,000	$25	$2Q†	12-19-38	6.73	7.46	7.00	12	95½	124¾	105
11	5⅛	8	7¼	7¼	Cities Service (new)	3,714,317	$10	....	6-1-32	1.02	0.13	....	5⅜	1½	7⅜	3
2⅜	⅞	1	1	1	Cosden Petroleum	462,551	$1	.....	.....	0.19	....	.....	5½	1½	4½	1½
27½	17½	22¾	22¼	22⅝	Creole Petroleum	6,975,383	$5	50cSA†	12-15-38	1.61	1.23	1.00	38¾	20¼	39	19⅝
10¼	5½	7⅞	7¾	7¾	Darby Petroleum	351,390	$5	25cSA	1-15-39	1.36	1.26	.50	18⅝	6½	18½	9
3½	1¾	1⅞	1⅞	1⅞	Derby Oil & Refining	263,162	N.P.	....	.....	1.34	0.66	....	8⅜	2¼	6⅜	1⅞
31	19	..	..	..	Eureka Pipe Line	50,000	$50	50c	11-1-38	—0.12	—0.62	4.00	47½	24½	47½	38½
46⅞	33	40½	39⅛	39⅛	Gulf Oil Corp.	9,076,202	$25	25cQ	12-15-38	3.51	2.90	1.00	63½	33	59	36
72⅝	56	67⅝	65⅝	67⅜	Humble Oil & Refining	8,987,840	N.P.	62½c	12-27-38	5.22	3.80	2.00	87	54⅞	80	57
19½	14⅛	17⅞	17⅛	17⅞	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	12-1-38	0.98	0.95	1.25	24¼	14½	24½	19⅝
9⅝	6⅝	7	6⅞	6⅞	Indiana Pipe Line	300,000	$10	20c	11-15-38	1.03	1.00	.80	15	5⅞	9¾	5½
31¼	21	28⅜	27⅞	27⅞	International Petroleum	14,324,088	N.P.	$1.25†‡	12-1-38	..	1.81	2.50	39½	23½	39⅝	32⅝
5	2⅜	3¼	3	3	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	0.17	0.20	....	8⅜	2⅜	5⅜	2⅝
25⅛	15⅝	20	19½	20	Lion Oil Refining	434,820	N.P.	25cQ	10-10-38	2.17	1.43	1.50	34	12½	17⅜	7⅜
10⅜	6⅝	9⅞	9¾	9¾	Lone Star Gas	5,553,747	N.P.	20c	12-22-38	1.14	1.02	.60	14¼	5¼	14¾	9⅝
9⅜	6½	8	7⅜	7¾	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	12-15-38	0.58	0.64	.50	15¼	6⅜	15⅝	9⅝
9¾	6⅜	8⅝	8¼	8¼	Midwest Oil Co.	998,444	$10	50c	12-15-38	1.14	0.95	1.00	14⅝	6¼	..	..
5⅜	4½	5⅛	5	5	Mountain Producers	1,593,584	$10	30cSA	12-15-38	0.76	0.62	.60	7⅞	4⅛	8⅜	5
14⅝	11½	14¼	14	14⅛	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-38	0.96	1.19	1.00	19½	12	23	17⅜
9¼	6⅝	8	7½	7½	National Transit	509,000	$12.50	40c	12-15-38	1.19	0.79	1.00	12½	7¼	15⅜	9¾
2⅝	1½	1⅞	1⅞	1⅞	New Mexico and Arizona	1,000,000	$1	1c	12-1-38	0.02	0.02	....	5	1⅛	6⅜	1⅝
4½	4	..	..	..	New York Transit	100,000	$5	15c	10-15-38	0.49	0.34	1.00	5⅜	3⅞	6¼	4¼
6	4	..	..	..	Northern Pipe Line	120,000	$10	15c	12-1-38	0.78	0.66	1.00	12⅜	5⅜	9⅜	4⅞
7⅜	3½	6	5½	5⅝	Pantepec Oil	2,441,142	$1	....	....	....	0.05	..	9⅜	2⅜	10¼	3¼
3½	1⅝	2	2	2	Root Petroleum Co.	336,045	$1	25c	2-1-37	—0.17	0.45	.25	12⅜	2	19¼	4½
4	2⅛	2¾	2¾	2¾	Ryan Consolidated	296,931	N.P.	....	....	0.46	....	....	6½	2¼	4⅜	1⅞
5⅜	3¼	..	..	..	Southern Pipe Line	100,000	$10	15cSA	9-1-38	0.85	0.41	.45	7¼	3⅜	7⅞	3¼
39	38¾	31½	31	31½	South Penn Oil	1,000,000	$25	37½cQ	9-30-38	4.64	3.59	3.65	56	35	44	32½
22¼	19	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	10-1-38	0.95	0.97	2.00	42	20	60	44
18¾	15	18¼	18	18¼	Standard Oil of Kentucky	2,604,790	$10	50cQ†	12-15-38	1.60	1.46	1.50	21½	14¾	23⅜	17⅛
8¾	6	6½	6	6½	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	—0.58	0.42	.25	13¾	8	14⅝	11
22¾	16¼	21	20	21	Standard Oil of Ohio	753,740	$25	25c	12-15-38	3.67	4.77	1.50	45	16	40	21⅝
3¼	2⅛	2¾	2¼	2½	Sunray Oil	2,006,176	$1	10c	12-24-37	0.42	0.26	.25	4⅞	2	5	2⅝
5¼	3½	4¾	3⅞	3⅞	Texon Oil & Land	936,024	$2	15cQ	9-30-38	0.51	0.36	.45	7⅝	2	9⅝	5⅝
7⅝	4¼	5¾	5	5	Transwestern Oil Co.	750,000	$10	..	..	0.48	0.06	....	13⅞	4⅝	..	..
5¼	2¾	3½	3	3	United Gas Corp.	7,818,959	$1	...	.....	0.25	0.20	....	13⅜	3	10⅝	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

JACK S. GROSSHEART, engineer for the Gulf Oil Corporation in Centralia, Ill., is experiencing the thrill of being a dad. The newcomer is a son.

J. W. SELBY, chief scout for the Shell Petroleum Corporation in Houston, Tex., left last week for a deer hunt in Edwards and Kerr counties, that state.

LATEN STANBERRY'S resignation as head of the oil and gas division of the Texas Railroad Commission, effective December 1, may result in elimination of the post. E. O. THOMPSON, chairman of the commission, said he would recommend that the work of Mr. Stanberry's office be combined with that of V. E. COTTINGHAM, chief engineer and head of production. Mr. Thompson estimated the action would save $5,000 annually.

FRANK A. OYSTER, consulting geologist, has closed his office in Abilene, Tex., and opened an office in Owensboro, Ky.

TETSUSABURO HOSHI, field superintendent of the Nippon Oil Company, Ltd., Tiiwan, Japan, has been in Houston, Tex., and the Gulf Coast studying drilling and production practices.

COL. T. H. BARTON, president of the Lion Oil Refining Company, El Dorado, Ark., will be the guest speaker before the Petroleum Engineer's Club, Tulsa, December 9, taking as his subject, "The Young Engineer's Entrance Into Business."

ROBERT E. KING, geologist for the Shell Petroleum Corporation, Midland, Tex., has been elected president of the Midland Geological Society. H. D. PENNEL, geological scout for the Amerada Petroleum Corporation, was named vice president, and W. Y. PENN, consulting geologist, secretary-treasurer.

R. E. BEARD, manager of the Rocky Mountain division refineries of the Standard Oil Company of Indiana, will be promoted January 1 to manager of the refinery at Sugar Creek, Mo. He will succeed G. H. MOFFETT, who will retire, becoming one of the 800 beneficiaries of Standard's system of putting employes on annuities. Dr. C. C. BUCHLER, superintendent of the Casper, Wyo., refinery, will succeed Mr. Beard as manager of the Rocky Mountain refineries, and H. E. COTTON, general foreman of the light oils department at Casper, will move up to the position of superintendent. The changes at Casper will take place December 16. Mr. Moffett will close a career of almost 43 years in Standard's manufacturing department.

ANDRE DUBOIS, assistant process superintendent at the Standard Franco-Americaine de Raffinage at Port Jerome, France, was at Baytown, Tex., last week studying refinery methods employed at the Standard Oil Company of New Jersey plant there. He planned to visit other Standard plants and to return to France early in January. As a child of 6 he witnessed the assassination of Archduke Ferdinand of Austria and his wife at Sarajevo on June 28, 1914, which precipitated the world war. Mr. Dubois, who has traveled widely, says the United States is the "freest of them all." He said that in Russia one can not afford to travel alone for fear of being robbed. "I've paid as high as $20 for one meal," he said. "I tried to take some pictures but they took my camera, emptied it, and returned the machine to me with a warning."

W. H. LYON, rate and evaluation engineer for the Arkansas Fuel Oil Company of Shreveport, La., has taken the position of senior gas engineer for the Federal Power Commission.

FREDERICK G. CLAPP, consulting geologist of New York, delivered a lecture recently on "Explorations in Eastern Iran" before a joint session of the Iran Society and the Royal Central Asian Society in Royal Societies Hall, Burlington House, London.

WOODROW SPEER, geologist for Western Kansas Oil & Refining Corporation, has acquired a trailer, which is not only his home in the field, but his office as well. It is equipped with a drawing table and other paraphernalia so that he can check and test bottom-hole samples in his micropaleontological laboratory. J. I. DANIELS, geologist for Pryor & Lockhart, Inc.; COURTNEY B. DAVIS, and G. A. STEARNS, Wichita, Kans., operators, also are using trailers in the oil fields. The trailers are equipped with comforts of home.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Henry M. Blackmer has resigned as president of the International Trust Company to become associated with the Reed-Shoup group, which controls the Salt Creek, Wyoming, field and has interests in Colorado. The Midwest Oil Company and the Franco Petroleum Company are the largest Reed-Shoup companies in Wyoming.

The Somerset pool, close to the Bexar and Atascosa line in Texas, is opened by a 25-barrel well on the C. Kurz land drilled by Somerset Oil & Gas Company. Pay was topped at 1,130 feet.

20 YEARS AGO

Humble Oil & Refining Company gets a 10,000-barrel well in the West Columbia, Texas, field. It is No. 1 Girard 3 acres.

John Bahan, vice president and general manager of the Cumberland Pipe Line Company, has resigned after 40 years in the business of transporting oil. His successor has not been announced.

Mexican Eagle Petroleum Company No. 4 Potrero del Llano, one of the largest producing wells ever drilled in Mexico, has at last gone to water.

Charles S. Jones has been advanced to the position of chief scout for Sinclair Oil & Gas Company, succeeding the late Lloyd C. Brush.

10 YEARS AGO

The American Petroleum Institute establishes three divisions, producing, refining, and marketing, in order that the Institute can better serve the industry.

Indian Territory Illuminating Oil Company opens a pool in Section 24-11n-3w, near Oklahoma City, Okla. The discovery well is flowing about 100 barrels an hour at a total depth of 6,402 feet. Because of the great depth it is expected the pool will be developed slowly.

The recently discovered Kettleman Hills field in California is expected, by some geologists, to produce 500,000,000 barrels of oil before it passes out.

E. A. SHOWERS, Showers & Moncrief, independent operators, Houston, Tex., has purchased the 141 Ranch, consisting of 900 acres and improvements, northwest of Kerrville, in Kimble County.

ALBERT A. FISH, Philadelphia, Pa., executive director of the Pennsylvania Association of Petroleum Dealers, is confined to a hospital with fractures of both legs and internal injuries suffered when a snow-blinded motorist ran him down in his filling station.

PROF. EDWARD SAMPSON, instructor in geology at Princeton University and a director of the Salt Dome Oil Corporation, Houston, Tex., has been looking over operations of the company on the Gulf Coast as well as spending some time on a hunting trip.

FREDERICK S. FALES, vice president and director of the Socony-Vacuum Oil Company, Inc., has accepted the chairmanship of the Petroleum and Marine Oil group in this year's membership roll call of the New York chapter of the American Red Cross. He is urging a vigorous campaign to support the chapter and the Red Cross in their all-year activities.

WALLACE B. GRIBBLE, general superintendent of the Hope Natural Gas Company at Clarksburg, W. Va., has retired. He was honored by a dinner attended by 850 employes and friends gathered in five different hotel and dining halls. Speakers included R. W. GALLAGHER, vice president of the Standard Oil Company of New Jersey; H. C. COOPER, president of the Hope Natural Gas Company; S. E. W. BURNSIDE, secretary of the company, and HAROLD G. HOFFMAN, former governor of New Jersey. He entered company service with the Carter Oil Company in 1906.

PARAGRAPHS

PAUL WATSON, filling station operator in Pittsburgh, Pa., decided that if retailers were going to give away their gasoline in price wars they might as well suggest something in the way of charity on the part of customers. So Mr. Watson, selling gasoline 5 cents below the regular price, put out a milk bottle with the appeal, "Donations received to help pay the light bill." He reported that the amount of the bill was contributed in two days.

W. J. LARSON, Union Oil Company of California, Bakersfield, Calif., has been appointed vice chairman of the American Petroleum Institute's division of production topical committee on production practice in the California district. Nine other California petroleum engineers have been made members of the committee to represent the San Joaquin Valley area. D. L. Caldwell, Barnsdall Oil Company, Los Angeles, is chairman of the topical committee, which is a California group of the division of production, central committee on drilling and production practice.

A. W. BRANT and E. M. LAWSON, both of Nashville, Tenn., were looking over their oil interests in Southwest Texas last week, planning to go on to Mexico, where they jointly own an 80,000-acre ranch.

DR. K. WASHINGTON GRAY has been transferred from the Anglo-Iranian Oil Company to Australasian Petroleum Company Pty., Ltd., as chief geologist, with offices at Port Moresby, Papua. J. N. MONTGOMERY, formerly chief geologist for Oil Search, Ltd., has been appointed assistant to Doctor Gray.

LEWIS WILLIFORD, auditor of the Macmillan Petroleum Corporation, and DWIGHT MOORE, controller of the Wilshire Oil Company, were the principal speakers at the monthly meeting of the Los Angeles chapter, National Association of Cost Accountants. They discussed the Wages and Hours Act.

ADEN A. ENGLISH, superintendent of the package division at the Bayonne refinery of the Standard Oil Company of New Jersey, has retired after almost 28 years of service, which began with the West India Oil Company. Mr. English, who was honored at a dinner, received a ship's clock and a radio-phonograph from his associates.

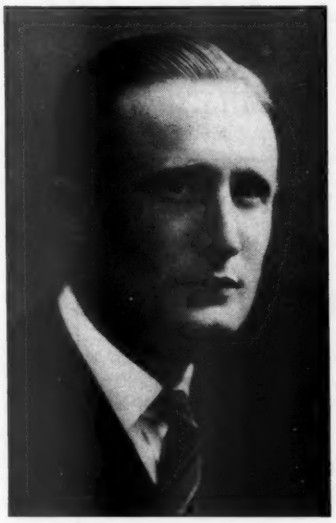
CLINT W. MURCHISON and TODDIE L. WYNNE, Dallas, Tex., oil operators, whose outside interests run to sheep and cattle raising, have purchased 50,000 acres or about half of the famous Light Ranch in La Salle and Dimmit counties, Southwest Texas. The acreage will be used as grazing grounds for Hereford cattle which the two operators breed on their island possession off Matagorda County on the Texas Coast. The oil men have sheep and goat grazing land in Central Texas.

CHARLES W. ROUP, district geologist in Kansas for the Indian Territory Illuminating Oil Company, has been transferred to Topeka to look after the company's interests in northeastern Kansas and northwestern Missouri. HARRY COOPER, I. T. I. O. scout in Kansas, has been transferred to Bartlesville, Okla. His place has been taken by J. C. McFARLAND.

SHIFTS: W. C. RAUCH, geologist, Union Oil Company of California, from Roosevelt, Utah, to Santa Maria, Calif.; PAUL HULL, superintendent, Seaboard Oil Company, from Borger, Tex., to Mattoon, Ill.; J. S. KAUFFMAN, geologist, H. F. Wilcox Oil & Gas Company, from Wichita Falls, Tex., to Tulsa; JULIAN HAWES, geologist, California Company, from Lake Charles, La., to Houston, Tex.; J. R. MUNCE, vice president, Arkansas Natural Gas Corporation, from Pittsburgh, Pa., to Sarasota, Fla.; T. W. WHEELER, superintendent, Chartiers Oil Company, from Logan, Ohio, to Huntington, W. Va.; W. M. GALLAGHER, treasurer, Peru Oil & Gas Company, from Oklahoma City, Okla., to Litchfield, Ill.; WILLIAM BROWN, plant foreman, Carter Oil Company, from Seminole, Okla., to Altmont, Ill.; D. W. CAMERON, scout, Carter Oil Company, from Great Bend, Kans., to St. Joseph, Mo.; A. E. PALMER, scout, Shell Petroleum Corporation, from Great Bend, Kans., to Mount Vernon, Ill.; PAUL TUCKER, computer, seismograph, Carter Oil Company, from Salina, Kans., to Marysville, Mo.; CHESTER A. BIRD, geologist, Gulf Oil Corporation, from Maracaibo, Venezuela, to Copenhagen, Denmark; LEO W. KONZ, computer, seismograph, Carter Oil Company, from El Dorado, Ark., to Harrisburg, Ill.

Happier in His New Lab

Dr. J. Bennett Hill, manager of the Sun Oil Company's development division, is happier now that he is settled in the new laboratory at Marcus Hook, Pa. Not that he ever was given to heartache; but things are more convenient, and he can reach for the litmus paper without upsetting a test-tube.



DR. J. BENNETT HILL

Upon receiving his Ph.D. from the University of Pennsylvania in 1916 Doctor Hill became manager of the Barrett Company's chemical department. In 1924 he joined the Atlantic Refining Company as chief research chemist, and two years later he was advanced to chief chemist, holding that post till 1934, when he went to the Sun to fill his present position. The Sun's development activities at Marcus Hook were scattered. Such buildings as might be available were pressed into service as requirements expanded beyond the capacity of the old laboratory structure. Doctor Hill's practical experience contributed much in designing the new plant.

Doctor Hill was born in Philadelphia, Pa., in 1891. He resides in Wynnewood, a Philadelphia suburb. He was chairman of the American Chemical Society's petroleum division from 1927 to 1930. He is a member of the American Institute of Chemical Engineers, Society of Automotive Engineers, and Society of the Chemical Industry. He plays golf and bridge, but his friends are noncommittal about the quality of his game. Among his major enthusiasms is his pipe, and you don't have to tell him the point of a joke.

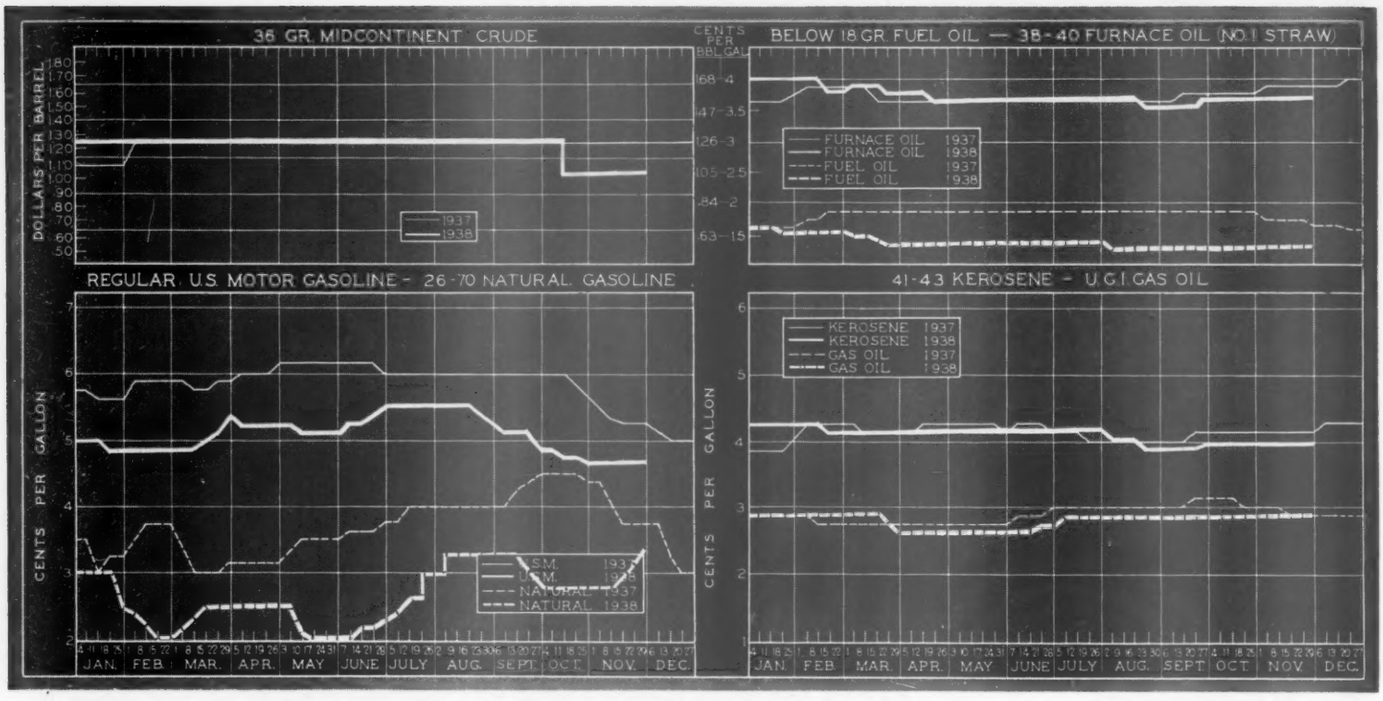
GEORGE W. HOLLAND, of the Petroleum Conservation Division of the Department of Interior, Washington, D. C., has finished an inspection tour of California oil fields.

A. A. MURRELL, San Antonio, Tex., independent oil producer of South Texas and New Mexico, was passing them around a few days ago in token of the arrival of a new baby daughter in his home.

W. C. VAN FLEET, W. P. DURKEE, L. C. KELLEY, and O. F. COLLINGE have been granted permission by the California Division of Corporations to incorporate as Van Fleet-Durkee, Inc., for production and distribution of oil. They will concentrate on marketing.

W. L. STEWART, JR., vice president of the Union Oil Company of California, has awarded a contract for construction of a cruising yawl, to be named the Santana II. The new boat will be the first on the Pacific Coast to have a specially designed bronze centerboard and monel rod rigging instead of wire. She will be 67 feet overall, 46 feet 6 inches at the water line, 13 feet 10 inches in beam, with a draft of 9 feet 1½ inches.

AARON and CECIL WELSH, oil producers of Oilmont, Mont., returned from a hunting trip near Jardine, north of Yellowstone Park, bringing with them a 1,000-pound bull moose. Aaron Welch had killed and was skinning an elk when the big bull charged him. He ran to cover and fired as the animal followed him. He reported the circumstances to a game warden, as it is illegal to kill moose, and the warden confiscated the carcass, later putting it up for sale. Welch bid it in for $25, thus getting the most prized of trophies, a bull moose head. Four elk and a blacktail deer were bagged, too.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Demand and Prices of Gasoline Sink in Group 3 Area, but Naturals Up

By T. F. SMILEY

Gasoline demand fell off in the Group 3 area the past week. There were reasons for it. Prices for the higher-octane grades fell off too. But there was no reason whatever for that; that is, no reason that would stand looking into.

With Thanksgiving and its football games past and with colder weather settling over widening regions, there was nothing strange about a slackening in the use of the family car. But with consumption of gasoline breaking fall records; with the country's stocks in much better position than they were last year; and yet with refiners, in spite of heavy movement, losing money every day, it is difficult to find any acceptable excuse for prices diving to still lower levels.

Statistical Situation Encouraging

Statistically the refinery market is distinctly encouraging. Demand is higher than it was in the comparable period of 1937, but refinery operations are lower. Estimates of demand in 1939 place it roughly at 4 per cent above that in 1938; but stocks are some 2,500,000 bbls. lower than they were at the close of November, 1937, with prospects that they will be at an economic level when the heavy consuming season opens next spring. Important in this connection is the fact that the winter decline in gasoline consumption becomes less marked each year; for manufacturers are making automobiles and trucks designed for better cold-weather operation, and refiners are making winter-specification gasoline that will drive them. In the light of these favorable conditions refiners generally express disgust over the further descent of gasoline tankcar prices.

Retail price wars, which continue in various areas, exert a depressing influence on refinery prices. Observers declare that the filling station operator with his 2-cent margin 15 years ago reaped more profit than he does now with a margin ranging from 2 to 4 cents. In support of their assertion they point to the fact that few service stations sell half as much as they did formerly. Filling stations have increased in number much faster than the demand for gasoline has.

The Barnsdall Refining Corp., which closed its refinery at Barnsdall, Okla., October 12, announced this week that it would resume operation December 1. Resumption at this plant, with its 5,000 bbls. daily capacity, affects about 240 employes.

Natural gasoline went up another notch, with the market in both Oklahoma and Texas vigorous. Demand on the part of refiners and jobbers was brisk, and some of the large manufacturers, who have been drawing heavily on their own stocks, were supplementing their supplies by purchases from smaller concerns to fill orders. A contract for a cargo for export had a stimulating effect. The Gulf Coast is now reported clear of overheavy stocks. Some Louisiana material, which is said to meet difficulty in finding outlets, seems to present about the only weakening influence in the natural gasoline market at this juncture.

Heating Oils Looking Better

The heating oils were looking better as freezing temperatures spread over the Atlantic Coast and much of the Middle West. This division of the refined market, which has been unseasonally soft owing to capricious weather, is expected to display firmness from now on.

Heavy fuels were becoming a less dismal problem as stocks on the Gulf Coast grew smaller under drafts from mills and transportation lines. While it is true that accumulations in the Shreveport area, owing to more advantageous freight rates to Gulf ports, will have to be absorbed before Mid-Continent refiners can benefit much from the reviving demand, nevertheless these refiners feel more cheerful about the situation.

Lubricants were still sick. Wax was firm, with nobody apparently making concessions and available stocks limited.

Refined Oil Market Barometer

Cold temperatures over wide regions have stimulated the heating oils and slightly slowed the demand for motor fuel. Gasoline prices, already soft, are tending to go still lower. Heavy fuels show steady improvement with the pickup in industry. Lubricants continue to drag.

MID-CONTINENT. Gasoline fairly steady. Naturals up. Furnace oils stronger. Lubes weak.

EAST COAST. Light fuels active. Gasoline demand declines and quotations unsteady.

GULF COAST. Gasoline steady. Burning oils improving. Heavy fuels stronger. Kerosene firm.

CALIFORNIA. Fuel oil down. Gasoline weak. Diesel and gas oil soft.

PENNSYLVANIA. Lubricants lifeless, bright stocks especially weak. Gasoline less firm.

CHICAGO. Gasoline demand holding well, but prices off. Heavy fuels firmer. Heating oils improving.

Onset of Winter Weather Starts First Uplift in Fuel Market

By H. STANLEY NORMAN

NEW YORK, Nov. 28.—Demand and prices for light fuel oil received their first uplift of the winter last week. The change from a lagging market to one with all the snap and vigor of winter was abrupt. Temperatures tumbled Thanksgiving day and night to a low of 15 at New York. Thermometers registered lower in many sections of the Middle West and Northeast, moving owners of home burners to send out pleas for prompt service of storage tanks.

Accompanying the subfreezing temperature was a snowfall which blanketed the North Atlantic region to a depth of nearly 10 inches in several areas. Automobile travel immediately dipped to a minimum under such unfavorable driving conditions. Up to Thanksgiving, however, motoring conditions had been exceptionally favorable and the heavy fall gasoline consumption continued even through the holiday, although much colder weather gave warning of what was coming in the way of weather.

The change from pleasant fall temperatures to mid-winter is too recent to gauge its ultimate influence on motor fuel markets. Through the end of last week, however, refinery motor fuel tankcar prices were unchanged at most points. Prices of high octane gasoline in Boston generally ranged upward from 6¼ cents, although an occasional offering at 6 cents was reported. New York Harbor prices for high octane motor fuel to the tankcar trade were hovering in a narrow range around 6 cents, while the same set of conditions appeared to prevail at Philadelphia. Suppliers were reported offering 65-octane gasoline in barges at 5⅝ cents and some sources were willing to shade this quotation slightly on a firm offer.

There appears little doubt that motor fuel prices will yield further ground if the current temperatures prevail over a considerable period as may be normally expected at this season of the year.

The recovery of residual fuel oil demand and prices continues to highlight the eastern petroleum markets. Bunker C fuel oil is still offered freely in New York at 95 cents per barrel and shore plant deliveries are currently made by some suppliers at 85 cents, but a majority of industrial sales are being made at 90 to 95 cents per barrel. The Gulf Coast primary market for residual fuel oil appears firm to strong at 65 cents per barrel. Several tankers have been chartered during the past two weeks for Gulf Coast to Hatteras service at 22 cents per barrel, making the current sales of heavy fuel oil at 85 cents fully 2 cents per barrel below actual cost, exclusive of terminal charges and delivery fees. Facts in the heavy fuel oil market indicate that the product is in position to move forward after months of inactivity.

Industrial activity is holding up to increased levels, heating requirements for office buildings and apartment houses have progressed with the calendar and movement of holiday goods to consumer markets has stimulated demand to highway, rail and marine transportation facilities.

Refiners on the Gulf Coast were reported testing the market last week with quotations slightly above 65 cents, and if resistance is not too acute the structure may occupy higher ground in the near future. There is apparent reluctance on the part of suppliers to make even slight price concessions, although refinery stocks of residual fuel are still high. Activity in the cargo motor fuel market on the Gulf Coast was limited last week. A cargo of 65-octane gasoline was reported sold at 4½ cents per gallon for December lifting and another of 68-octane material was said to have been traded at a price ranging from 4⅞ to 5⅛ cents, but details were lacking. In general the motor fuel market was unchanged for the week with a minimum of 4⅝ cents quoted on low octane gasoline, ranging up to 5½ cents for 70 octane.

A buyer was reported to have paid 3⅝ cents per gallon for a cargo of 58 Diesel index gas oil. Other buyers were reported interested in gas oil with high Diesel index, but difficulty was experienced in consolidating price ideas with those of suppliers. Up to the end of last week No. 2 fuel oil was available on the Gulf Coast at 3½ cents, but many in the eastern territory anticipated that the schedule might be elevated as inquiries develop for replacement of stocks liquidated by the colder weather. There is little, if any, light fuel oil in the hands of refiners seeking movement on a basis of price concessions alone and the more active demand may easily stimulate both sales and quotations.

Even in the face of comparatively light demand during October and the first four weeks of November, most of the price cutting in tank-wagon trade circles had been discarded. Up to the present, however, the light fuel oil tank-wagon market in the territory of concentrated oil burner use has lagged considerably behind 1937 quotations. With a firm tone prevailing at primary markets and an inclining tanker charter market it is understandable that tank-wagon price cutting has been largely abandoned.

The market for scale wax continues firm and prices appear to be bumping against the top peg of their range. Western Pennsylvania refiners were quoting a minimum of 2.35 cents for the 124-126 a.m.p. grade and several suppliers normally interested in spot markets had withdrawn quotations pending fulfillment of orders from contract customers.

Reports were current that several western Pennsylvania refiners had lowered their bright stock quotations as much as 2 cents. Activity in the lubricating oil market has been depressed for nearly a month after being temporarily stimulated by the fall motor oil change campaigns.

The tank-wagon price on regular motor fuel was lowered a half cent per gallon November 19 by Socony-Vacuum Oil Co., Inc., at Syracuse, bringing the quotation down to 13½ cents, including taxes. The tank-wagon market at Utica, N. Y., was also reported off a half cent.

In other eastern sections, excepting southern New Jersey, the tank-wagon and retail motor fuel markets were unchanged from the preceding week, but numerous areas are unsettled. The Camden, N. J., market has suffered a new reversal after temporary recovery three weeks ago. The undivided dealer tank-wagon price in Camden is now 7.2 cents per gallon and the most generally posted retail price is 9.9 cents, exclusive of taxes. The depressed price conditions originating in Camden are gradually eating into the outlying retail areas represented by Gloucester and Burlington counties and even into the Atlantic City territory. Third grade gasoline is quoted to undivided dealers in tank-wagons at 7 cents with a 1.9 cents margin tacked on for the retail price.

Up to the present, Philadelphia retail markets have not been disturbed by the relapse at Camden.

(Continued on Page 110)

A. P. I. Weekly Refinery Statistics

Week Ending November 26, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	481,000	16,934,000	16,540,000
Appalachian	85.9	102,000	2,717,000	766,000
Indiana, Illinois, and Kentucky	89.5	459,000	10,406,000	8,980,000
Oklahoma, Kansas, and Missouri	81.6	255,000	6,475,000	4,666,000
Inland Texas	50.3	103,000	1,616,000	2,037,000
Texas Gulf	88.9	822,000	9,754,000	14,739,000
Louisiana Gulf	97.3	131,000	2,040,000	2,802,000
North Louisiana and Arkansas	55.0	41,000	408,000	924,000
Rocky Mountains	54.2	47,000	1,130,000	775,000
California	90.0	521,000	13,418,000	98,005,000
Total reported	85.6	2,962,000	64,898,000	150,234,000
Estimated unreported	.....	333,000	3,730,000	3,400,000
*Estimated total	.....	3,295,000	68,628,000	153,634,000
*Estimated total previous week	.....	3,230,000	67,624,000	153,971,000
*November 27, 1937	.....	3,325,000	70,283,000	120,104,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending November 12, 1938	273,394,000 barrels
Week ending November 5, 1938	275,217,000 barrels
Week ending November 13, 1937	305,608,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of November 29, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Gasoline: Dlr. tax	Gasoline: Inc. tax	Kero. tank wag.
Chicago, Ill.	15.1	12.1	4.0	10.0
Decatur	15.1	12.6	4.0	10.0
Joliet	15.1	12.6	4.0	10.0
Peoria	15.1	13.1	4.0	10.0
Quincy	14.9	12.9	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.0	5.0	10.3
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	14.3	12.8	4.0	9.0
Grand Rapids	14.8	13.05	4.0	9.7
Saginaw	15.8	14.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†9.5
South Bend	17.1	15.6	5.0	†9.0
Fargo, N. Dak.	16.7	15.2	4.0	11.6
Minot	18.0	16.5	4.0	12.9
Huron, S. Dak.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	7.5
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.9	4.0	9.3
Wichita, Kans.	13.9	10.6	4.0	7.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective November 1, 1938, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gallons, 9 cents; 100-149 gallons, 8 cents; 150 gallons and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex furnace oil, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex grade A, 1-399 gallons 4.75 cents; 400 gallons and over 3.75 cents. Stanolex grade B, 1-799 gallons, 4.75 cents; 800 gallons and over, 3.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank-wag. dlr.	Gasoline: Tank-car con'r.	Gasoline: Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	12.9	10.9	4.0	8.0
Newark	12.9	10.9	4.0	8.0
Annapolis, Md.	14.35	12.85	5.0	9.5
Baltimore	13.75	12.25	5.0	8.5
Cumberland	16.15	13.65	5.0	10.0
Wash'g'n, D. C.	12.0	10.50	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	11.0
Charles'n, W. V.	16.55	14.05	6.0	12.6
Parkersburg	14.85	13.35	6.0	11.2
Wheeling	15.75	14.35	6.0	12.2
Charlotte, N. C.	18.15	15.65	7.0	12.1
Hickory	18.65	16.15	7.0	12.5
Mt. Airy	18.45	15.95	7.0	12.3
Raleigh	17.75	15.25	7.0	11.6
Salisbury	18.25	15.75	7.0	12.2
Charleston, S. C.	16.75	14.25	7.0	10.6
Columbia	17.75	15.25	7.0	11.6
Spartanburg	18.45	15.95	7.0	12.4

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

While the above prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.4 cents per gallon for Essolene. Dealers having pumps marked only "Esso, Essolene and 'Standard White'" gasoline will pay 7.9 cents for Essolene. Price basis to all other undivided dealers above is Essolene dealer tank-wagon price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank-wag.	Gasoline: Net dlr.	Gasoline: Inc. tax	Kero. tank-wag.
Atlanta, Ga.	20.5	17.5	7.0	8.5
Augusta	20.0	17.0	7.0	10.0
Macon	20.0	17.0	7.0	11.0
Savannah	19.0	16.0	7.0	9.0
Birm'ham, Ala.	21.0	18.0	8.0	8.5
Mobile	21.0	18.0	9.0	8.5
Montgomery	21.0	19.0	9.0	10.5
Jackson, Miss.	18.5	15.5	7.0	9.5
Vicksburg	19.5	16.5	7.0	9.0
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	20.0	17.0	8.0	8.0
Pensacola	21.0	18.0	9.0	8.0
Tampa	20.0	17.0	8.0	8.0
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	17.5	14.5	6.0	9.5
Louisville	17.5	14.5	6.0	9.0
Paducah	19.0	16.0	6.0	9.0

*Includes 1-cent state tax.

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallons discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Dealer	Gasoline: Inc. tax	Kero. tank wag.
Denver, Colo.	15.5	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16.5	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	13.0	5.0	13.0
Billings, Mont.	18.0	6.0	13.0
Butte	19.5	6.0	15.5
Great Falls	19.0	6.0	15.5
Helena	20.0	6.0	15.5
Salt Lake City, Utah	16.0	5.0	16.0
Boise, Idaho	19.0	6.0	18.0
Twin Falls	19.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of .5 cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank-wag. con'r.	Gasoline: Dlr. dlr.	Gasoline: Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank-wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax.	Kero. tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: T'wag. dealer	Gasoline: T'car consr.	Gasoline: Inc. tax	Kero. tank wag.
Albany	14.3	12.3	5.0	8.0
*Met. N. Y.:				
Manhat., Bronx	13.4	12.25	5.0	8.0
Staten Island	13.4	12.25	5.0	8.0
Q'ns. & Bklyn.	13.4	12.25	5.0	8.0
Buffalo	12.9	12.6	5.0	7.5
Rochester	14.0	13.2	5.0	8.5
Syracuse	13.5	12.9	5.0	8.5
Boston, Mass.	12.5	11.0	4.0	7.5
Portland, Me.	14.0	12.25	5.0	8.75
Manch'ter, N. H.	14.5	12.8	5.0	8.5
Burlington, Vt.	14.7	12.65	5.0	9.5
Springf'd., Mass.	13.0	11.5	4.0	8.0
Worcester	13.0	11.5	4.0	8.0
Hartford, Conn.	13.0	11.4	4.0	7.0
New Haven	12.8	11.3	4.0	6.0
Providence, R. I.	12.5	11.0	4.0	7.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank-wag. dlr.	Gasoline: Tank-car con'r.	Gasoline: Inc. tax	Kero. tank-wag.
Phil'delphia, Pa.	13.0	12.0	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	13.5	....	5.0	10.5
Wilmington	12.5	....	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank wagon delivery, 4 cents per gallon above undivided dealer price.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank-wag. dlr.	Gasoline: Tank-car con'r.	Gasoline: Inc. tax	Kero. tank-wag.
N. Orleans, La.	19.25	16.75	*10.0	†11.0
Baton Rouge	17.25	14.75	8.0	‡10.5
Alexandria	17.25	14.75	8.0	‡12.5
Lafayette	17.50	15.00	8.0	‡12.5
Lake Charles	17.25	14.75	8.0	‡12.5
Shreveport	16.00	13.50	8.0	‡11.0
Knoxville, Tenn.	20.50	18.00	8.0	14.5
Memphis	18.50	16.00	8.0	12.5
Chattanooga	20.00	17.50	8.0	14.0
Nashville	17.50	17.00	8.0	12.0
Bristol	19.00	18.25	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consume tank-wagon price will be equivalent to the dealer price less .5 cent per gallon. Kerosene prices include 1-cent state tax.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank-wag.	Gasoline: Dlr.	Gasoline: Inc. tax	Kero. tank wag.
Omaha	17.5	16.0	6.0	10.3
McCook	17.5	16.0	6.0	10.0
Norfolk	17.9	14.9	6.0	10.7
North Platte	18.3	15.4	6.0	11.1
Scottsbluff	19.0	13.9	6.0	11.8

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935

Oklahoma and Arkansas

CONTINENTAL OIL CO

	Gasoline: Dealer	Gasoline: Inc. tax	Kero. tank-wag.
Muskogee, Okla.	13.5	5.0	7.0
Oklahoma City	12.5	5.0	7.0
Tulsa	12.0	5.0	6.0
Fort Smith, Ark.	14.25	5.0	7.5
Little Rock	16.75	7.5	9.0
Texarkana	14.0	5.0	8.0

Texas

	Gasoline: Tank-wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax.	Kero. tank-wag.
Dallas, Tex.	14.0	17.0	5.0	8.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	23.5	10.0	17.5
St. John, N. B.	23.5	10.0	17.5
Monteral, Que.	20.0	6.0	14.5
Toronto, Ont.	21.0	6.0	15.5
Hamilton, Ont.	21.0	6.0	15.5
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.9
Regina, Sask.	26.0	7.0	23.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	23.5	7.0	19.9
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. (Indiana) reduced dealer gasoline .5 cent November 7 in Chicago, 1 cent November 10 in Joliet, .4 cent November 14 in Green Bay; reduced tank-wagon kerosene 1.6 cents November 8 in St. Louis, .5 cent November 16 in Wichita.

Socony-Vacuum Oil Co., Inc., November 19 reduced tank-wagon kerosene .5 cent in Syracuse.

New York Market

(Continued from Page 109)

Retail prices are generally 15½ cents for regular motor fuel and 17½ cents for premium grades. Several points in up-state Pennsylvania represented by Lancaster, Chambersburg, Pottstown, Pottsville and Scranton have price wars to contend with at present.

Numerous small and medium cities in southern and western New York and in western Pennsylvania are also suffering price warfare in their gasoline markets. This condition has imposed a new hardship on refiners of western Pennsylvania crude which still commands a premium for the producers but is competing with less expensive motor fuel from Michigan and Illinois.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of November 29, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04¼	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400 grades:		
62 oct. and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04¼	.04½
70-72 octane (regular)	.04½	.04⅝
64-66 375	.04	.04¼
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04¼	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400	.03¾	.04
64-66 375	.04	.04¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04	.04¼
63-66 octane	.04¼	.04½
67-69 octane	.04½	.04¾
70-72 octane (regular)	.04⅝	.05⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04¼
67-69 octane	.05	.05⅛

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04¼	.04½
70-72 octane	.04½	.04¾
60-62 400 grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04¼	.04½
70-72 octane	.04½	.04¾
64-66 375	.04	.04¼
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.04¾	.05¼
65 octane		.06¼
68-70 octane		.06¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06½	.08
58-60 400, 65 oct. and higher	.07½	.09

EAST COAST (domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Boston	.06¼	.06½
Baltimore	.06	.06¼
Charleston, S. C.	.06¾	.07
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.06¾
Philadelphia	.06½	.06¾
Boston	.06½	.06¾
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane		.04¼
60-64.9	.04½	.04⅝
65 octane and higher		.04⅝
68-70		.05

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¾	.04⅞

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.03¼
Grade 18-55	.03¾	.03⅞

NORTH TEXAS—

Grade 26-70		.03
Grade 18-55	.03½	.03⅝

CALIFORNIA—

75-85 375-390	.06¼	.06¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.03⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03⅞	.04
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 i.b.p., 480 max., e.p.	.04½	.04¾

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04	.04⅛
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅜

ARKANSAS (Ark. and N. La. del.)—

41-43		.04½

PENNSYLVANIA (inland refineries)—

45	.04¾	.05
46	.04⅞	.05⅛
47	.05	.05⅛

CHICAGO (Based on Group 3)—

41-43	.04	.04⅛
42-44	.04¼	.04⅜

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.04⅝	.04¾

***GULF COAST (domestic)—**

41-43	.03⅞	.04

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03⅜	.03½
No. 3 zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.04½	.04⅝
*No. 2		.04
*No. 4		.04

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅞	.03⅛
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low pourpoint, 18-22	.70	.75
Below 18 fuel oil, industrial	.50	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅞	.03⅛
No. 4, low pourpoint, 24-28	1.00	1.10
No. 5, low pourpoint, 18-22	.70	.75
Below 18 fuel oil, industrial	.50	.60

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅞	.03
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low pourpoint, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pourpoint, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.03⅞	.04⅝

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.35
24 plus Diesel, per bbl.	1.00	1.30
24 plus Diesel (bunkers)	1.20	1.50
12-16 (bunkers at tidewater)	.80	.90
10-16 (cargo lots)	.62	.80
12-17 (tankcars)	.50	.80
10-17 (high sulfur)	.45	.70
San Joaquin Valley:		
10-18 (tankcars)	.50	.80
24 plus Diesel, per bbl.	1.15	1.40
San Francisco:		
24 plus Diesel, per bbl.	1.40	1.45
24 plus Diesel (bunkers)	1.45	1.55
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel		.03⅜
43-47 Diesel		.03½
48-52 Diesel	.03½	.03⅝
53-57 Diesel	.03⅝	.03¾
Bunkers (bulk cargoes)	.60	.65
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¼
28-30 Diesel (lighterage 6¼c per bbl.)		1.75
28-30 Diesel (tankcars)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. Harbor)		.95
Industrial fuel (tankcars)	.03¾	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D. 15-25		.19
150-160 D. 0-10	.14¼	.16
150-160 D. 15-25	.13½	.15½
150-160 E. 15-25	.13	.15
100-110 D. 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)	.04½	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pourpoint	.17	.17½
15 pourpoint	.16	.16½
20 pourpoint	.15	.15½
25 pourpoint	.14	.14½
Steam refined:		
600	.08	.08½
650	.10	.10½
600 Pennsylvania flash	.10½	.11
630 flash	.13½	.14
600 Warren E filtered	.12½	.13

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 pourpoint:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.12½

GULF COAST—

Pale oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red oils:		
200-5-6	.07¼	.07½
300-5-6	.07¾	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° color, 400-405 flash:		
Zero pourpoint	.17	.17½
10 pourpoint	.16	.16½
15 pourpoint	.15	.15½
25 pourpoint	.14	.14½
200 vis. at 70° F., 3 color:		
Zero pourpoint	.19	.19½
10 pourpoint	.18	.18½
15 pourpoint	.17	.17½
25 pourpoint	.16	.16½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02¼	.02½

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0235	.0245
124-126 (a.m.p.) w.c. scale	.0235	.0245

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0375
125-127 (a.m.p.) wax		.0390
128-130 (a.m.p.) wax		.0400
130-132 (a.m.p.) wax		.0435
133-135 (a.m.p.) wax		.0465
135-137 (a.m.p.) wax		.0490
124-126 (a.m.p.) w.s.		.0230
124-126 (a.m.p.) y.s.		.0230
Petrolatum in barrels, carload lots:		
Dark green	.02	.02¼
Amber	.02⅜	.02⅝
Extra amber	.02⅝	.02¾
Lily white	.05⅛	.05¼
Snow white	.06⅛	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04⅜	.04½
60-62 400	.04⅜	.04½
61-63 390	.04¼	.04⅝
64-66 375	.04½	.04⅝

LOS ANGELES—

U. S. Motor grades:		
55-65 octane		.05
65-69 octane		.05¼
Above 69 octane		.05½

KEROSENE

GULF COAST—

41-43 prime white	.03⅞	.04
41-43 water white	.03⅞	.04

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder stocks:		
600 Warren E	.15	.15½
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.17	.17½
600 flash, S.R.	.17	.17½
630 flash, S.R.	.20½	.21
Bright stock:		
8 color	.16¼	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude scale:		
124-126 w.s.	.0235	.0245
124-126 y.s.	.0235	.0245

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* $1.10
Van, Tex. (Oct. 11, 1938)* ..... .93
Talco, Tex. (Oct. 11, 1938)* ..... .55
Rodessa, Tex. ..... See North Louisiana gravity schedule
Cass and Panola counties, Texas ..... See gravity schedule
Altus and Tipton† ..... See note below
Cayuga, Tex. (Oct. 12) ..... .81
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co.

Altus and Tipton, Okla., starting at below 25 degrees at 71 cents, 2-cent spread to 40 degrees and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on October 11. Cayuga posted by Tide Water Associated Oil Co. Clay Creek posted by Sun Oil Co.

Crude Prices by Gravities

	Oklahoma	Oklahoma and Kansas	North and Central Texas	Louisiana and Arkansas	East Central Texas	Gray County, Texas	Hutchinson and Carson counties, Texas	Raccoon Bend, Satsuma and Tomball, Texas	West Texas and Lea County, N. M.	Fort Collins and Wellington, Colo.	Anahuac and Dickinson, Texas	Refugio, Texas	Mirando and Duval Texas	Gulf Coast Texas	Cass and Panola counties, Texas	Beaumont and West Beaumont, Texas	Lockport, Iowa, Cameron Meadows, Louisiana	Artesia, Jackson and Maljamar, N. M.	Iowa, Louisiana
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Below 18	....	....	....	....	....	....	....	....	$.53	....	$.74	$.79	$.74	$.79	....	....	$.74	....	$.75
18-18.9	....	....	....	....	....	....	....	....	.53	....	.74	.79	.74	.79	....	$.79	.78	....	.77
19-19.9	....	....	....	....	....	....	....	....	.55	....	.77	.82	.77	.82	....	.82	.80	....	.79
20-20.9	$.60	$.70	....	....	....	....	....	....	.57	....	.80	.85	.80	.85	....	.85	.82	....	.81
21-21.9	.63	.72	....	....	....	....	....	....	.59	....	.83	.88	.83	.88	....	.88	.85	....	.83
22-22.9	.66	.74	....	....	....	....	....	.95	.61	....	.86	.91	.86	.91	....	.91	.88	....	.86
23-23.9	.69	.76	....	....	.78	....	....	.97	.63	....	.89	.94	.89	.94	....	.94	.91	....	.89
24-24.9	.72	.78	$.71	....	.80	....	....	.99	.63	....	.89	.94	.89	.94	$.73	....	.94	....	.92
Below 25	....	....	....	$.73	....	....	....	....	....	....	....	....	....	....	.73	....	....	....	....
25-25.9	.75	.80	.73	.75	.82	....	....	1.01	.65	....	.92	.97	.92	.97	.75	.97	.94	....	.95
26-26.9	.78	.82	.75	.77	.84	....	....	1.03	.67	....	.95	1.00	.95	1.00	.77	1.00	.97	....	.98
27-27.9	.81	.84	.77	.79	.86	....	....	1.05	.69	....	.97	1.02	.97	1.02	.78	1.02	.99	....	1.00
28-28.9	.84	.86	.79	.81	.88	$.72	$.67	1.07	.71	$.81	.99	1.04	.99	1.04	.81	1.04	1.01	$.61	1.02
29-29.9	.87	.88	.81	.83	.90	.74	.69	1.09	.73	.83	1.01	1.06	1.01	1.06	.83	1.06	1.03	.63	1.04
Below 30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
30-30.9	.90	.90	.83	.85	.92	.76	.71	1.11	.75	.85	1.03	1.08	1.03	1.08	.85	1.08	1.05	.65	1.06
31-31.9	.92	.92	.85	.87	.94	.78	.73	1.13	.77	.87	1.05	1.10	1.05	1.10	.87	1.10	1.07	.67	1.08
32-32.9	.94	.94	.87	.89	.96	.80	.75	1.15	.79	.89	1.07	1.12	1.07	1.12	.89	1.12	1.09	.69	1.10
33-33.9	.96	.96	.89	.91	.98	.82	.77	1.17	.81	.91	1.09	1.14	1.09	1.14	.91	1.14	1.11	.71	1.12
34-34.9	.98	.98	.91	.93	1.00	.84	.79	1.19	.83	.93	1.11	1.16	1.11	1.16	.93	1.16	1.13	.73	1.14
Below 35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.00	1.00	.93	.95	1.02	.86	.81	1.21	.85	.95	1.13	1.18	1.13	1.18	.95	1.18	....	.75	....
36-36.9	1.02	1.02	.95	.97	1.04	.88	.83	1.23	.87	.97	1.15	1.20	1.15	1.20	.97	1.20	....	.77	....
37-37.9	1.04	1.04	.97	.99	1.06	.90	.85	1.25	.89	.99	1.17	1.22	1.17	1.22	.99	1.22	....	.79	....
38-38.9	1.06	1.06	.99	1.01	1.08	.92	.87	1.27	.91	1.01	1.19	1.24	1.19	1.24	1.01	1.24	....	.81	....
39-39.9	1.08	1.08	1.01	1.03	1.10	.94	.89	1.29	.93	1.03	1.21	1.26	1.21	1.26	1.03	1.26	....	.83	....
40 and over	1.10	1.10	....	1.05	1.12	....	....	....	.95	1.05	....	....	....	1.28	1.05	1.28	....	.85	....
40-40.9	....	....	1.03	....	....	.96	.91	1.31	....	....	1.23	1.28	1.23	....	....	....	....	....	....
41-41.9	....	....	1.05	....	....	.98	.93	1.33	....	....	1.25	1.30	1.25	....	....	....	....	....	....
42-42.9	....	....	1.07	....	....	1.00	.95	1.35	....	....	1.27	1.32	1.27	....	....	....	....	....	....
43-43.9	....	....	1.09	....	....	1.02	.97	1.37	....	....	1.29	1.34	1.29	....	....	....	....	....	....
44-44.9	....	....	1.11	....	....	1.04	.99	1.39	....	....	1.31	1.36	1.31	....	....	....	....	....	....
45 and over	....	....	1.13	....	....	1.06	1.01	1.41	....	....	1.33	1.38	1.33	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co., effective October 12, 1938. Shell Petroleum Corp., effective October 22, 1938, in Oklahoma and Kansas; Mid-Continent Petroleum Corp., in Oklahoma, starting at 21 degrees at 63 cents, effective October 15, 1938.

Column 2—Standard Oil Co. of Indiana, effective October 11, 1938, below 29 degrees 86 cents, with 2-cent spread to 40 and over at $1.10. Same company on October 17 revised the schedule to start at below 21 degrees at 70 cents, with 2-cent spread to 40 and over at $1.10. Sinclair Prairie Oil Marketing Co. schedule started at below 25 degrees, 60 cents; 25-25.9, 80 cents with 2-cent differential up to $1.10 for 40 degrees and over, effective October 11, but was revised on October 14, starting at 21 gravity, 63 cents, with a 3-cent spread to 30-30.9 dgrees at 90 cents, then a 2-cent spread to 40 degrees and over at $1.10. Gulf Oil Corp. schedule starts at below 25 degrees, 78 cents, with 2-cent differential up to $1.10 for 40 degrees and over, effective October 13. Shell Petroleum Corp. schedule same as that of Gulf, effective October 13 to October 21 (see Column 1). The Texas Co. schedule starts at 28-28.9 degrees, 86 cents, with top of $1.10 for 40 degrees and over. Pure Oil Co. same as Standard of Indiana's October 11 schedule, effective October 14.

Column 3—Humble Oil & Refining Co. in Central Texas, effective October 11. Magnolia Petroleum Co. schedule in North and Central Texas, same as the Humble, excepting that it starts at below 29 degrees at 79 cents, effective October 12. The Texas Co. schedule in North and Central Texas, same as Magnolia's except that it stops at 40 degrees and over at $1.03, effective October 12. Gulf Refining Co. same as the Texas Co., effective October 13. Sinclair Prairie Oil Marketing Co., in Mexia and North Central Texas, below 29 degrees, 76 cents, with 2 cents added for each degree up to and including 40 and over at $1, effective October 11. Stanolind Oil Purchasing Co. schedule started at below 29 degrees at 79 cents with a top of $1.03 for 40 degrees and over, effective October 11, but was revised on October 17 to read below 21 degrees, 60, cents, with a 2-cent spread to 40 degrees and over at $1.

Column 4—Standard Oil Co. of Louisiana, effective October 5, 1938. Met by Gulf Refining Co. October 13; met by Texas Co. October 12.

Column 5—Humble Oil & Refining Co., October 11, 1938.

Column 6—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees at 96 cents, October 11. Texas Co. quotes "Panhandle sweet crude," beginning with 34-34.9 degrees, at 84 cents, with 2-cent spread to 40 and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9 degrees, with a top of 91 cents for 40 degrees and over, effective October 12. Magnolia Petroleum Co. met Humble prices throughout, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents with a 2-cent spread, and a top price of 96 cents for 40 degrees and above, and "Panhandle sour crude" below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above. effective October 13. Phillips Petroleum Co. schedule for sweet crude in the Gray, Carson and Hutchinson counties, starts at below 29 degrees, 64 cents, with a spread of 2 cents up to 88 cents for 40 degrees and over, effective October 12.

Column 7—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees and over at 91 cents. Texas Co. quotes "Panhandle sweet crude" at 34-34.9 degrees, 84 cents, with a top of 96 cents for 40 gravity, and "Panhandle sour crude" at 34-34.9 degrees, 79 cents, with a top of 91 cents for 40 degrees and over, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents, with a top of 96 cents for 40 degrees and over and "Panhandle sour crude" at below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above, effective October 13. Phillips Petroleum Co. schedule for sour crude in Carson, Moore and Hutchinson counties, starts at below 29 degrees at 59 cents, with 2-cent spread up to 83 cents for 40 degrees and over, effective October 12.

Column 8—Humble Oil & Refining Co., effective October 11, 1938. Magnolia Petroleum Co., in Tomball, effective October 12.

Column 9—Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule starts below 26 degrees, 65 cents, and ends at 36 degrees and over at 87 cents, effective October 12. Gulf Refining Co. starts at below 26 degrees at 65 cents and ends at 40 degrees and over at 95 cents, effective October 13. Magnolia Petroleum Co. schedule starts below 25 degrees, 63 cents, and ends at 40 degrees and above at 95 cents, effective October 12. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, effective October 11. Stanolind Oil Purchasing Co. schedule same as that of Humble, effective October 11. Stanolind Oil & Gas Co. (Winkler County) starts at below 26 degrees, 65 cents, with a 2-cent spread, and a top of 95 cents for 40 degrees and above, effective October 11.

Column 10—Continental Oil Co., effective October 11, 1938.

Column 11—Humble Oil & Refining Co., effective October 11, 1938. Met by Gulf Refining Co. in Anahuac, but stopping at 40 and above at $1.23, effective October 12.

Column 12—Humble Oil & Refining Co., effective October 11, 1938. Met by the Texas Co. starting at below 21 degrees at 81 cents and stopping at 28 and above at $1.04.

Column 13—Humble Oil & Refining Co. in Mirando, effective October 11, 1938. The Texas Co. schedule in Mirando and Duval starts at below 21 degrees, 77 cents, with 3-cent spread to 28-28.9 degrees at 99 cents.

Column 14—Posted by Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule in coastal Texas and Louisiana, starts at below 21 degrees, 82 cents, with 3-cent differential up to 26-26.9 at $1 and then a 2-cent differential to top of $1.16 for 34 degrees and above, effective October 12. Gulf Refining Co. schedule on Louisiana Gulf Coast starts at below 18 gravity, 76 cents, with 2-cent spread to 20-20.9 degrees at 82 cents, then a 3-cent spread to 26-26.9 degrees at $1, then a 2-cent spread to a top of $1.16 for 34 degrees and over, effective October 12. Sun Oil Co. met Humble prices October 13, stopping at 34 degrees and over at $1.16.

Column 15—Magnolia Petroleum Co., effective October 12, 1938.

Column 16—Stanolind Oil & Gas Co. in West Beaumont, effective October 11, 1938, and Magnolia Petroleum Co. in Beaumont field, effective October 12.

Column 17—Magnolia Petroleum Co., effective October 12, 1938. Column 18—Continental Oil Co., effective October 11, 1938. Column 19—Shell Petroleum Corp., October 11, 1938.

Gulf Coast

Conroe, Tex. (Oct. 11, 1938)* $1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† ..... See note below
Gibson, La. (Oct. 11, 1938)† 1.04
Garden Island, La. (Oct. 12, 1938)‡ 1.24
Lafitte, La. (Oct. 12, 1938)‡ 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ .. 1.14
Hardin, Tex. (Oct. 12, 1938)¶ 1.02
Tepetate, La. (Oct. 11, 1938)§ 1.03
Villa Platte, La. (Oct. 11, 1938)§ .. 1.03
Abbeville, La. (Oct. 11, 1938)§ ..... See note below
Bosco, La. (Oct. 13, 1938)¶ 1.02
Creole, La. (Oct. 12, 1938)¶ ..... .96
Gueydan, Sweet Lake and Louise, La. (Oct. 13, 1938)¶ ..... See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)** 1.08
Long Lake, Tex. (Oct. 13, 1938)** 1.08
Segno and Wing (Oct. 13, 1938)** ..... See note below
Livingston (Oct. 11, 1938)† 1.10
Gibson, La. (Oct. 11, 1938)† 1.04

*Humble Oil & Refining Co. †Shell Petroleum Corp. ‡The Texas Co. §Continental Oil Co. ¶Magnolia Petroleum Co. ‖Pure Oil Co. **Gulf Refining Co.

Black Bayou, etc., starts at below 20 degrees at 79 cents; 20-20.9, 81 cents; 21-21.9, 83 cents, then a 3-cent spread to 26-26.9 degrees, 98 cents, and 27 degrees and over $1. Abbeville starts at below 36 degrees, $1.01, 2-cent spread to 40 degrees and over at $1.11. Gueydan, etc., starts at below 20 degrees, 79 cents, 3-cent spread to 26-26.9 degrees at $1, and 2-cent spread to 40 degrees and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18 gravity, 76 cents, 2-cent spread to 20-20.9 at 82 cents; then a 3-cent spread to 26-26.9 at $1; then a 2-cent spread to 34 degrees and over at $1.16.

Southwest Texas

Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* ..... $ .96
Pettus (Oct. 11, 1938)* 1.29
Flour Bluff (Oct. 11, 1938)* 1.27
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† .. .99
Mirando (Oct. 12, 1938)† .....
Government Wells (Oct. 13, 1938) ..... See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20 gravity, 77 cents, 3 cent spread to 24-24.9 at 89 cents.

North Louisiana and Arkansas

Smackover, Ark. (Oct. 5, 1938)* .... $ .78
Buckner, Magnolia and Village, Ark. (Oct. 5, 1938)* ..... See note below
Schuler, Jones sand ..... See note below
Tullos and Urania ..... .89
El Dorado east field .....
Lisbon, La. (Sept. 19, 1938) ..... See note below

*Smackover posted by Standard Oil Co. of Louisiana, October 5, 1938; by Magnolia Petroleum Co., October 12; by Gulf Refining Co., October 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25 degrees, 66 cents, with 2-cent spread to 40 and over at 98 cents; by Lion Oil Refining Co. on October 5, 1938; Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolie; by Lion Oil Refining Co., October 5; Buckner, Magnolia and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on October 5; quote same prices as for Schuler Jones sand crude.

Middle Western States

OHIO OIL CO.
(Effective October 13, 1938)

Lima, Ohio ..... $ .90
Illinois old fields 1.05
Illinois basin 1.15
Princeton, Ind. 1.05
Western Kentucky 1.10
Greendale, Porter and Crystal, Mich. (Oct. 13, 1938)* ..... .92½
Buckeye, Bentley, Edenville, Beaverton, Mich. (Oct. 13, 1938)* .... .90
Freeman, Mich. (Oct. 13, 1938)* .. .87
West Branch and Arenac, Mich. (Oct. 13, 1938)* ..... .74
Muskegon 1.00
Eastern Kentucky:
Big Sandy River (Oct. 1, 1938)† .. 1.22
Kentucky River (Oct. 1, 1938)† .. 1.30

*Simrall Corp. †Ashland Refining Co.

Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)* .. $ .92
Elk Basin, Wyo. (Oct. 11, 1938)*† .. .90
Grass Creek, light, Wyo. (Oct. 11, 1938)*† ..... .90
Grass Creek, heavy (Oct. 11, 1938)† .40
Lance Creek, Wyo. (Oct. 11, 1938)* .77
Rock Creek, Wyo. (Oct. 11, 1938)* 1.00
Iles, light, Colo. (Oct. 11, 1938)† .. .98

(Continued on Page 119)

New or Improved Equipment

Shutoff Valve Keeps Air From Entering Gathering Lines

J. T. Cronkhite, president of the Hayes Equipment Manufacturing Co., 624 Gilbert Street, Wichita, Kans., has announced a new automatic shut-off valve for preventing air from entering gathering lines from field storage-tanks. The valve is inserted on the tank outlet line, and according to the manufacturer, no special fittings are required, as standard 2-, 4-, 6- or 8-inch fittings are used, depending upon the size of the valve installed.

The valve, the manufacturer says, is simple in design and positive in action. It is inserted into a regular tee joint by screwing into the lower outlet of the tee a nipple into which a seat is fitted, equipped with a tripper to release a float. This float will rise in the oil into the standpipe in the upper outlet of the tee in the top of which is inserted a petcock or quarter-inch gate, used as a bleeder to release the air coming into the standpipe when the tank has been turned on. When the pipe is full of oil, the float is tripped from the seat and it rises to the top of the standpipe, remaining there until air comes into the headline when the oil level in the tank has gone down to tank outlet. The air releases the float, which descends in the oil to its resting place in the seat. One valve inserted in the headline will take care of a whole battery of tanks. Shipping weight of the 4-inch valve is slightly less than 6 pounds.

Turner Joins Clark Sales Staff

Clark Brothers Co., of Olean, N. Y., has added R. H. Turner to its sales staff, with headquarters at the Tulsa branch office and warehouse. Mr. Turner is a graduate of the U. S. Naval Academy, at Annapolis, and has had wide experience in the natural gasoline field, having served in the gasoline department of the Louisiana Oil & Refining Co. for several years, following which he became sales representative in Dallas, Tex., for the C. F. Braun Co., of California. He will assist the company's Tulsa sales staff in its sales and service operations in the Mid-Continent area.

Here and There With Men Who Manufacture Equipment

Lou F. Kinderman has joined the staff of district sales representatives of Iron & Steel Products, Inc., Chicago. He has been assigned to the Cleveland-Pittsburgh territory, with headquarters in Warren, Ohio. Mr. Kinderman formerly was with Republic Steel Corp. and Westinghouse Electric & Manufacturing Co. in an engineering capacity.

T. D. Cartledge, formerly assistant general sales manager, has been appointed general sales manager of the Linde Air Products Co., a unit of Union Carbide & Carbon Corp., 30 East Forty-second Street, New York.

General Machine & Supply Co., Wichita Falls, Tex., announces it will continue as distributor for Le Roi oil-field drilling and pumping engines throughout North, Northwest, and West Texas, and will continue to make deliveries anywhere in the Mid-Continent fields. This firm has been handling Le Roi engines for the past two years and maintains complete stocks.

Thermoid Rubber, Division of Thermoid Co., Trenton, N. J., has appointed R. L. Bothwell as its oil-country representative in the California fields. He will sell the full line of Thermoid products for the oil field including flat pumping belts, multiple-V belts, rotary hose, slushpump hose, etc.

Dowell, Inc., Tulsa, which provides an oil and gas well chemical service, has opened a Texas office in the Fort Worth Club Building, Fort Worth, under the supervision of F. I. McConnell, assistant sales manager.

Wickwire Spencer Opens New Warehouse for Gulf Coast

Better to serve the handling and distribution of Wickwire rope in the Texas and Gulf Coast areas, Wickwire Spencer Steel Co., New York,

which has had sales offices and warehouses in Abilene, Tex., and Tulsa, has opened a new warehouse at 10 North Milby Street, Houston, Tex. A complete range of rope stocks in all sizes and grades of standard and Wisscolay preformed construction are being maintained to handle cable-tool and rotary drilling lines. Strategically located and modernly equipped, this new distributing unit is said by the company to be capable of giving excellent service in the cutting, servicing and speedy delivery of wire lines in Gulf Coast fields.

Jarecki Store at St. Elmo

Jarecki Manufacturing Co., Erie, Pa., has opened a new store at St. Elmo, Ill. Ralph R. Jones is manager; Robert L. Brannon, Curtis A. Spangler, John W. Sydnor, and Walter E. Montgomery, Jr., are the other members of the staff. The store is distributing a complete line of oil-field supplies, as well as Jarecki's own line of valves, fittings, and oil-field specialties.

Comet Hoist Is Designed to Plug Into Ordinary Lamp Socket

Combining the dependability of big scale hoisting equipment with compact, light-weight convenience is what CM engineering is said to have

achieved in the new Comet hoist, introduced by Chisholm-Moore Hoist Corp., 156 Fremont Avenue, Tonawanda, N. Y. Easily carried and installed by one man, the Comet is powered by a specially built heavy-duty, high-torque motor that runs on an ordinary light circuit or three-phase power line. It is described as a rugged, versatile tool which saves time and energy on hoisting operations where heavy equipment is costly and impractical.

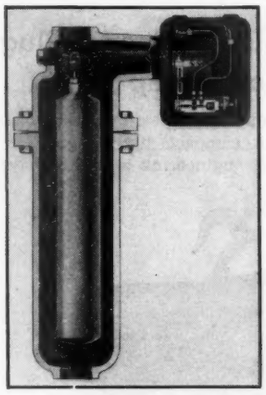
Compact design and ease of operation make the Comet especially valuable for service on production lines in large plants. Precision ball bearings are provided at each rotating point. Gears are precision-machined of heat-treated alloy steel The controller, with patented "delayed reversing" feature, operates easily with one hand and affords an extremely sensitive control for lifting the load distances of a fraction of an inch. The brake is smooth, quick-acting, and positive. It prevents drifting of the load and is easily adjusted. Herc-alloy "double-duty" chain is extra-strong, flexible, and kink-proof. Upper and lower safety stops automatically limit travel of the load hook. The Comet is offered in four capacities 250, 500, 750, and 1,000 pounds, and several speeds. The 500-pound size weighs only 85 pounds.

Hornbrook Goes to Peru

J. W. Hornbrook, of Bartlesville, Okla., has been employed by the Peruvian Government to instruct and supervise geophysical and exploratory drilling with the use of Franks Manufacturing Corp. "Slim Hole" portable rotary and deep core-drilling units. Mr. Hornbrook, formerly core-drilling superintendent for the Cities Service Oil Co., has had wide experience in this field, holding many invention patents. He conceived many of the features built into the "Slim Hole" rig and has done much to pioneer this unit. Mrs. Hornbrook and their young son will be with him in Peru.

Liquid-Level Controller of New Type Announced by Fisher

A new and more efficient long-range liquid-level controller, the Type 246 Level-Trol, has been developed by the Fisher Governor Co. of Marshalltown, Iowa. It is a remote type, designed to maintain an extremely sensitive, throttling level control in towers, accumulators, reboilers and side strippers. The operating medium may be either air or non-corrosive gas.



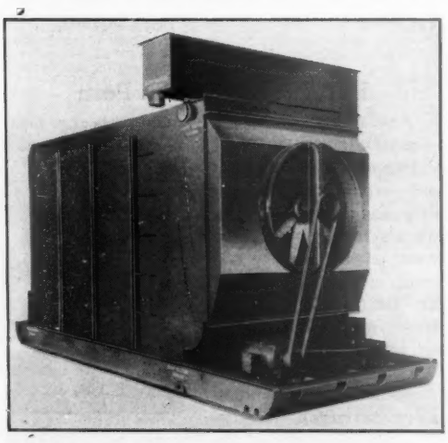
This new control can be used on liquids of all gravities. It is especially suited for high-viscosity oils, because its float operates without guides, which ordinarily cause friction and sluggish operation. The Level-Trol delivers operating medium pressures of 2 to 15 pounds to the diaphragm valve.

The Fisher Level-Trol utilizes a principle of operation based on weight measurement of buoyancy rather than a float riding a moving level. All lost motion is eliminated from the float mechanism. An anchored cantilever spring supports the float, which is specially weighted to sink in the liquid being handled. As the liquid rises, that displaced by the float creates a buoyancy which partly relieves the cantilever spring. As the spring returns toward its normal position, this action is transmitted to the pilot valve by an arm which contacts the spring through an extremely small rotary stem. Fisher engineers state that a level change as small as one thirty-second of an inch will register a pressure change at the diaphragm.

Marley Water-Cooling Unit for Oil-Field Engines Offered

The new Marley portable water-cooling unit for use with oil-field engines is said by the manufacturer, the Marley Co., Kansas City, Kans., to offer a solution of problems connected with the cooling of portable engines. The unit is light, small and compact. One man and a truck with power winch can pick up, transport, and unload it.

The closed system of copper atmospheric tube sections cools jacket-water without ever exposing it to outside air, thus saving all the valuable soft



water for continuous recirculation, keeping it pure and preventing scale. Efficient heat transfer is fully tested and rated. Cooled soft water can be provided at the extract temperature for a particular engine's requirements, thus assuring highest efficiency.

Enclosed soft water prevents the internal scale which cracks engine-heads. Controlled cooling supplies proper oil temperatures and eliminates cylinder strain. Simple hook-up avoids costly new arrangements and piping at each move. The units are sturdily built for heavy-duty service. Staunch construction permits rough handling in transportation and severe use and exposure on the job without danger of damage.

Adaptable power unit mountings permit the swift removal of one type and hook-up of another. A.C. or D.C. electric motors and gas or gasoline engines are furnished, any one or all of which may be obtained with original purchase. Removable fan-guards shield the quiet Marley fan. Adjustable-pitch aluminum-alloy fan-blades can be altered to vary the amount of air induced through the decking section. A heavy-duty centrifugal pump circulates raw water.

Two New Products Introduced by Bradford Motor Works

A new ball and seat called the B-M-W tower type (Figure 1) is offered by Bradford Motor Works, Bradford, Pa. Investigation by engineers of this company is said to have shown that the conventional valve seat is distorted in the process of assembling in the complete valve. In other words, the seating surface is no longer perfectly round after the valve crown has been screwed down against the bead of the seat to hold it in place. The investigators learned that by elongating the upper portion of the seat and machining grooves in it, as shown in Figure 1, all possibility of distortion is eliminated.

Fig. 1

The B-M-W tower-type valve and seat are made in Chromard, Monarch, Bramo, Lumonel, Bimetal and Extrard bronze.

The new ball and seat have been subjected to tests in actual pumping service under a wide variety of conditions, and very successful runs are reported. This success is attributed principally to the fact that the ball is tightly fitted to the seat when the pump is first operated.

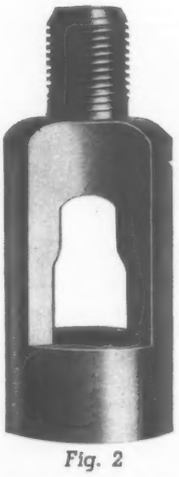


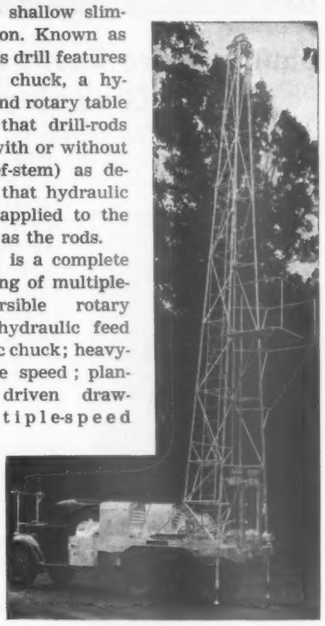
Fig. 2

Figure 2 shows the new B-M-W two-way nonmagnetic crown. Producers frequently have seen a valve-crown beaten out in the wings by the spinning of the valve-ball. The construction of the two-way crown is such as to prevent this. Also, there is often a magnetic condition in oil wells which causes a ball to stick in the upper portion of the crown. This sticking is said to be prevented in the two-way crown by minimizing metallic contact between the ball and the crown at the upper end of the ball travel.

This two-way nonmagnetic crown can be used with any ball or seat. The tower-type ball and seat, however, requires the use of the B-M-W two-way crown, as no other will fit.

Oil-Field Motorized Core-Drill Is Designed for Various Uses

Sullivan Machinery Co., Michigan City, Ind., has perfected a motorized oil-field core-drill for structure testing, drilling for electrical logging holes and for shallow slim-hole production. Known as the No. 41, this drill features an automatic chuck, a hydraulic feed and rotary table so arranged that drill-rods can be used with or without a kelly (grief-stem) as desired and so that hydraulic feed can be applied to the kelly as well as the rods.



The No. 41 is a complete drill, consisting of multiple-speed reversible rotary table, with hydraulic feed and automatic chuck; heavy-duty multiple speed; planetary gear-driven drawworks; multiple-speed cathead; mud pump; closed hydraulic pressure system; hydraulically elevated and lowered derrick; adequate power drive from either single or dual engines or from truck engine through power take-off—all assembled on a single rigid frame.

The entire assembly can be mounted on any suitable motor-truck trailer, semitrailer, crawler tractor, crawler wagon, or on skids.

Simplified Proportioning Unit

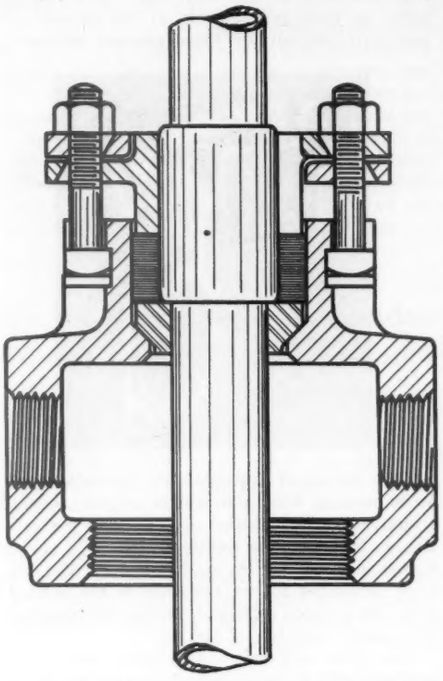
Application of the patented Haering fluid piston principle to a new and simplified proportioning unit is said to have effected marked savings in this process and power plant equipment at the same time that new methods of assembly have reduced installation costs. The Model Simplex feeder, developed by D. W. Haering & Co., Inc., 3408 West Monroe Street, Chicago, is said to provide accurate, automatic, proportioning equipment. It is specially adapted for proportioning water treatment but may be employed for the proportionate introduction of any average chemical solution into liquid lines. This new H-O-H feeder is activated by the pressure difference between pitot tubes. Installation requires only the connection of the pipe to the main fluid lines either as a by-pass or replacement section.

Meehanite Research Institute

At the annual meeting of the Meehanite Research Institute held in Rochester, N. Y., O. Smalley, president of the Meehanite Metal Corp., Pittsburgh, Pa., was reelected president; H. B. Hanley, foundry manager of the American Laundry Machinery Co., Rochester, N. Y., vice president; and F. M. Robbins, president of the Ross-Meehan Foundries, Chattanooga, Tenn., secretary-treasurer. Research and advertising activities are to receive special emphasis under the supervision of A. C. Denison, president of Fulton Foundry & Machine Co., Cleveland, Ohio, as chairman of the research committee, and Peter E. Rentschler, president of Hamilton Foundry & Machine Co., Hamilton, Ohio, as chairman of the advertising committee. Over 65 representatives of the Meehanite licensees throughout this country, Canada, and South Africa attended the meetings.

National Casinghead Is Built for Secondary-Recovery Fields

The National Type B stuffing-box casinghead, described in a recent bulletin of National Supply



Co., for shallow fields where secondary recovery is being carried on, is designed to support a string of tubing under conditions where an efficient packing is required to maintain either pressure or vacuum between tubing and casing. It is available in sizes from 4-inch pipe up to 7-inch A.P.I. casing.

The body, designed to support the tubing with a high factor of safety, is built for 500 pounds working pressure. The opening through the body is of ample diameter and is beveled to pass tubing couplings. The tubing coupling is supported on a split steel seat at the lower end of the stuffing-box. The seal is effected by means of a one-piece split rubber packing between the coupling and the body. The construction, in addition to packing the joint, grips the tubing coupling and prevents straining the supporting threads should the tubing connections above be damaged by failure of the pumping-jack, fire, or other external forces. The packing-gland also is split, with overlapping ears so arranged that the two bolts hold the halves of the gland together. The bolt slots are so constructed that the bolts may be inclined and the gland raised for repacking without removing the nuts from the bolts.

The Type B head may be furnished also to pack around the tubing instead of the tubing collar. In this alternative construction the collar seats on top of the split packing gland and the seal is effected by the same type of one-piece rubber packing between the tubing and the body. Parts other than the packing and packing-gland are identical in the two types of heads.

Injunction Given Byron Jackson

Following the recent filing of a patent suit by Byron Jackson Co. in the U. S. District Court at Oklahoma City, the defendants, McKee Supply Co. and O. B. McKee, dealers in second-hand oil-well equipment at Oklahoma City, have been enjoined, pursuant to a consent decree, from continuing their practice of making up for sale oil-well pipe and casing tongs employing parts of used Byron Jackson tongs, assembled with or without one or parts made by the defendants. The decree finds that the defendants had infringed the patents of Byron Jackson Co. as follows:

"By making and selling individual parts and elements of said tongs, with the intention that the same were to be assembled in pipe and casing tongs embodying and containing the invention of said letters patent as set forth in said claims thereof; that said defendants have infringed said patents by purchasing or otherwise acquiring used or worn out pipe and casing tongs and parts thereof manufactured, assembled and sold by the plaintiff, and by disassembling said tongs and parts into their elements, and from the parts of different tongs so disassembled, constructing and selling complete tongs and tong heads; that said tongs and tong heads so constructed and sold by the defendants do not preserve the identity of any original tongs or tong heads manufactured, assembled and sold by the plaintiff; and that the defendants have infringed all of the claims of all of the said patents above named under the guise of repairing the tongs manufactured and sold by the plaintiff, by rebuilding worn out tongs, tong heads, and parts thereof, and selling the same."

In obtaining this injunction, Byron Jackson Co. invoked a remedy accorded by the patent laws which, though well established by prior court decisions, has not heretofore been sought in the oil equipment industry. This action by Byron Jackson Co. may be followed by similar action by other oil field equipment manufacturers in an endeavor to properly protect their patented lines.

Bulletins, Booklets and Other Literature for the Trade

How to meter steam accurately in the form of condensate is the subject of a revised 12-page bulletin on the Adsco rotary condensation meter, which may be obtained by addressing the American District Steam Co., North Tonawanda, N. Y.

A bulletin, No. 938, "Milton Roy Chemical Pumps and Proportioners," describes improved models of single and multiple unit motor pumps designed for pumping any type of chemical in exactly the desired volume against pressures ranging from 0 to 15,000 pounds. Copies may be obtained from Milton Roy, 2031 East Madison Street, Philadelphia, Pa.

The economies, advantages and capacities of the "Caterpillar" Diesel D4 tractor are set forth in a 32-page booklet, Form 4870, issued by Caterpillar Tractor Co., Peoria, Ill. Cutaway photographs, in two colors, show the principles of the tractor's engine, its fuel system, operation, etc.

Baldwin-Hill Co., 561 Klagg Avenue, Trenton, N. J., has published its new catalog on B-H Rockwool insulation materials for industrial use. Included are such products as insulation wool, Rockwool blanket, No. 100 pipe insulation, No. 1 insulating cement, etc.

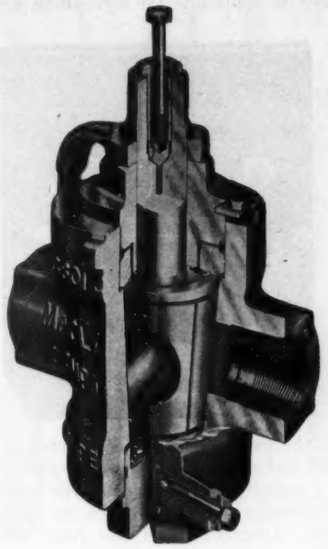
Procedures for producing all types of welds in mild steel, for welding all metals used to any extent industrially and for applying surfacing metal to meet any type of wear-action in service, are given in a new bulletin issued by the Lincoln Electric Co., Cleveland, Ohio.

A bulletin on N G E liquid-level controllers has been prepared for distribution by Natural Gas Equipment, Inc., Petroleum Securities Building, Los Angeles, Calif.

Ferec iron-removal filters are the subject of a bulletin released by Wm. B. Scaife & Sons Co., Oakmont, Pa. This new type of filter is designed to remove iron minerals from water by a process known as catalytic filtration.

Packing Troubles and Leakage Are Averted by "Hydro-Seal"

A new development in plug-valve construction has been announced by MacClatchie Manufacturing Co., Compton, Calif., whose new model "Hy-



dro-Seal" is said to incorporate engineering advancements that eliminate packing troubles and make it leak-proof. The manufacturers say the packing and sealing arrangement is such that one valve can be used interchangeably on chemical, gas, gasoline, oil or mud lines with equal efficiency and dependability.

The "Hydro-Seal" plug valve is entirely grease-packed. Two separate lubrication chambers, each equipped with the new "Lubricheck," permit positive, thorough packing at all points where fluid might escape. All the packing can be tightened or even completely renewed from the outside while the valve is working under high pressures.

Another important feature is the arrangement of the thrust bearings. By improved design the fluid pressure has been distributed so that it tends to push the plug down instead of up. This thrust load is carried upon a roller-bearing assembly, adjusted exactly to balance the thrust pressure. Thus the higher the pressure the tighter the seal, but the plug will neither freeze nor turn hard under high pressures because it rotates upon the specially designed thrust bearing.

The "Lubricheck," a recent MacClatchie development, makes it possible to close off the grease chamber while a new grease-stick is inserted, without shutting down operations.

Two Caterpillar Promotions

The post of general sales manager of Caterpillar Tractor Co. goes to Donald A. Robison, treasurer. W. J. McBrian, domestic credit manager, has been promoted to treasurer. Mr. Robison joined the company in 1926, doing manual labor in a parts storeroom. Swift promotions carried him to sales work, then to assistant credit manager, to cashier, to credit manager of the western division, to assistant treasurer, and in 1937 to treasurer.

Robison

Mr. McBrian, after several years in newspaper work, joined Standard Oil Co. (Indiana) as assistant office manager in Evansville, Ind. In 1927 he went to Peoria, Ill., as manager for a new branch office of the oil company. The next year he became domestic credit manager for Caterpillar.

Brown Develops Controller for Low Pressures and Drafts

The Brown Instrument Co., Philadelphia, Pa., announces its Air-o-Line furnace pressure controller. Long past the pioneering stage, this instrument is applicable for controlling any pres-

sure in the range from minus 5 inches of water to plus 5 inches of water. The controller is essentially a sensitive, inverted-bell type draft indicator combined with the Brown Air-o-Line control unit. Automatic reset and fully adjustable throttling range prevent the furnace pressure from lining out at some point other than the control point and eliminate overcorrecting and cycling.

This instrument, the manufacturer says, has held furnace pressures within plus or minus .002 inches of water on a scale span of 0.2 inches of water. Not only is it accurate, but it is practically instantaneous in operation, as the pointer will move 10 per cent of the total range in one second, and 100 per cent of the total range in three seconds. The controller is adaptable to installation on all types of furnaces, stills, kilns, ovens and other similar equipment where very low differential or static pressure must be maintained.

Trade-mark Issued to Skinner

K. G. Merrill, president of M. B. Skinner Co. of South Bend, Ind., maker of repair clamps for steel and cast-iron pipe, announces that the U. S. Patent Office has issued Trade-mark No. 359892, which protects the trade name "Skinner-Seal," used in connection with the company's products. The word clearly defines the basic principle of the Skinner pipe-repair method — to seal the gasket in each of the company's nine different styles of pipe-leak repair-clamps, sealing in pressure, sealing out air and moisture, and thus protecting the gasket permanently. Although the trade-name is new, the pipe-repair method was introduced in 1898, and Skinner clamps have been widely used since that time.

Drillstem Test Completed With Johnston Formation Tester

On October 13, 1938, a Johnston formation tester completed what is generally believed to be the world's deepest drillstem test, in the Wasco area, where the world's deepest oil well is located. It was made at an approximate depth of 13,000 feet inside of 7-inch casing. The patented Johnston trip valve, which detects drillpipe leaks before the test is made, showed up two leaks that would have thrown the test completely off had they not been discovered. When the first attempt to open the trip valve was unsuccessful, a second go-devil was dropped, and the valve still failed to open, giving definite indication that the drillpipe leak somewhere in the string had allowed fluid to enter above the valve.

The packer then was released from the seat by opening the Johnston equalizing valve and the tool was removed from the hole. Two leaking joints were found in the string. After these had been repaired the tester was rerun, and this time the drill pipe remained dry, assuring a successful test. Only a small fluid rise occurred when the main valve was opened, which in conjunction with the pressure chart obtained from the test zone by the Johnston pressure recorder, gave conclusive evidence of the exact productive possibilities of the test formation.

Europe Looks to America

"Europe is looking to America for the development of oil field equipment and methods," reports Walter T. Wells, president of the Lane-Wells Co., who has returned from a two months' visit to England and the Continent. Mr. Wells met executives of major oil producing companies. The greatest interest of European oil operators, he says, is in the development of modern drilling and completion methods with the view of reducing production costs. Every part of Europe is being tested for possible producing fields, and as a result the outlook for American equipment manufacturers in foreign fields is bright. "With overseas prospects good for 1939 and a record year for 1938 in the United States, the Lane-Wells Co. plans an aggressive campaign," said Mr. Wells.

Two New Products Announced to Make Leakproof Joints

Bond Lubrication Products Co., Houston, Tex., has been formed to manufacture and distribute "Hi-Speed" thread seal compound for casing and tubing, and "No-Gall" grease for tool joints.

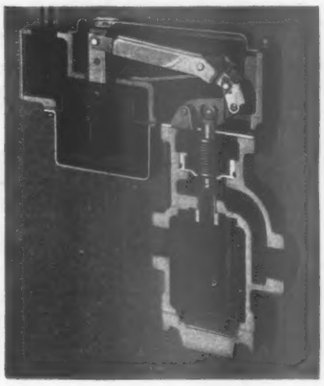
According to the manufacturer, both products were scientifically compounded after exhaustive research to develop a lubricant that would definitely provide leakproof joints, an essential factor of safety in high-pressure fields.

Flexarc Welding Cable

A Flexarc welding cable that is flexible, durable, light in weight and has positive insulation, applicable for field and shop use, is announced by Westinghouse Electric & Manufacturing Co. This cable complies with the latest I.P.C.E.A. specifications for rubber sheathed arc-welding cables. The paper separator between the copper and rubber sheathing permits sliding action between the outside layers of wires and the rubber jacket. The large number of fine copper wires composing the stranding provide for extreme flexibility. The protective jackets are of 60 per cent rubber armor, built for hard usage under the most severe conditions and for long service with maximum safety.

Electric Valve Is Designed to Assure Positive Operation

The new electrically operated valve announced by McDonnell & Miller, Wrigley Building, Chicago, was developed to insure tight closure against water or fluid pressure up to 150 pounds, and positive operation for those services where the



highest degree of dependability is essential. In accomplishing this, the weight of the solenoid armature is not depended upon to hold the valve closed. Instead, it is tightly seated by a spring-loaded leverage system as illustrated. The long lever connected to the armature of the solenoid gives the solenoid sufficient mechanical advantage for positive opening of the valve.

The valve and seat are stainless steel of file hardness, and all packing is eliminated by the use of a Sylphon bellows. An unusual feature of the valve is the slot-and-roller construction which removes angular stress from the valve-stem and assures straight thrust of the cone when seating. The valve is protected by a large built-in strainer. A convenient feature is in the button at the end of the long lever which provides for manual operation or testing.

The valve will handle any fluid (not corrosive to its working parts) at any inlet pressure up to 150 pounds. Discharge capacity ranges from 1,100 to 3,200 pounds (of water) per hour depending, of course, on differential between inlet and discharge pressures. Standard electrical rating is 115-V, 60 cycle, but coils for other voltages and frequencies are available.

Baroid Offers Convenient Case for Its Wall-Building Tester

A compact, sturdy carrying case has been designed by the Baroid Sales Department, 837 Jackson Street, Los Angeles, Calif. It enables the mud engineer to carry his Baroid wall-building tester from well to well.

The 100-pound pressure wall-building tester has given the oil industry an accurate check on the drilling mud right at the well. Operation of

the tester involves compressing the mud to be tested against a permeable filter pad or paper,

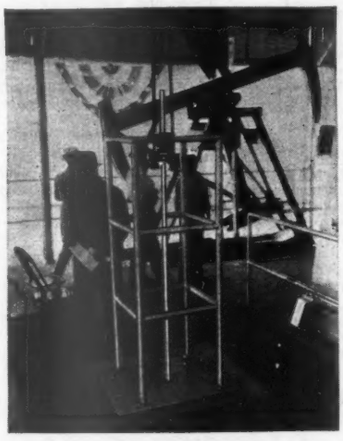
thus producing essentially the same results as those produced by the pressure of the mud column against the walls of the hole. By this method it is possible to determine the thickness of the cakes formed on the walls of the hole by the various muds.

It has been found that the thicker the cake and the higher the water loss of that cake the greater is the danger of caving, tight hole, and stuck drillpipe. Cake thickens and water loss are influenced by sand content, salt content, gel strength, viscosity, weight, and percentage of solids. Therefore the wall-building test simplifies mud analysis by providing an over-all evaluation of the mud. The result is a composite of all the variables affecting the mud, giving an indication of its actual performance in the hole.

Job Indicates Immense Strides Made in Welding Technique

The advances made in welding technique and welding equipment are indicated by a job done by W. J. Christie, of Tulsa, in welding a sucker-rod. The job, it is declared, would have been out of the question five years ago. Today it is commonplace.

Mr. Christie was called in by the Mid-Continent Supply Co. which was preparing its exhibit for the International Petroleum Exposition in Tulsa. Part of the exhibit was an Emsco pumping-jack in operation. The plan was to weld a coupling on the end of about 10 feet of sucker-rod and to this



coupling attach a weight equivalent to that met in a definite range of pumping service.

Using a P&H-Hansen 150-ampere gasoline-engine-driven welder, with a 5/32-inch Smootharc A. P. electrode, Mr. Christie set his amperage control at 125 amperes and went to work. He made a 1-inch fillet weld that was under a strain of constantly lifting and lowering a load of 5 tons throughout the period of the exposition. It held perfectly, of course, and the picture shows it in operation at the exhibit. Similar jobs of welding in the field are being done every day now.

Further Simplification of Koppers

Koppers Co.'s Western Gas Division, Fort Wayne, Ind., has been absorbed by its Bartlett Hayward Division, Baltimore, Md., it was announced by Walter F. Perkins, vice president of Koppers. Sales and engineering activities in Fort Wayne will be moved to Baltimore, where they will be consolidated with the Bartlett Hayward organization. This move is another step in the process of corporate simplification which was started by Koppers Co. two years ago. The consolidation brings two of Koppers' major manufacturing divisions under single management. Mr. Perkins will be in direct charge of the combined divisions.

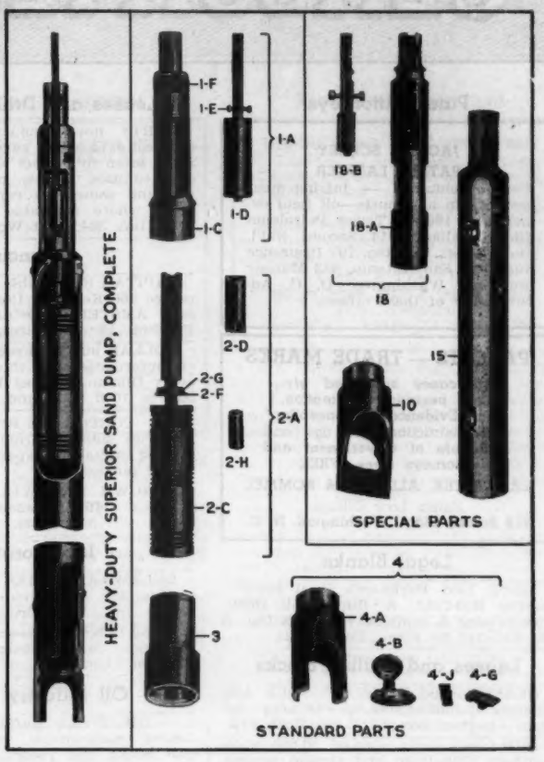
NEW "OILWELL" SAND-PUMP MADE FOR SEVERE SERVICE

A new heavy-duty Superior sand-pump now manufactured and sold by Oil Well Supply Co. was developed because of increasing demand for pumps where conditions are extremely severe. It is similar in general design and principle of operation to the regular-type pump, but it is equipped with a heavier tube and is constructed for exacting service. The main advantages are said to be its safety, dependability, convenience, and quick action.

The screw-type bottom bushing (3), which is riveted and welded to the seamless-steel tube, provides a strong threaded connection for the interchangeable bottoms. The sand-pump bottom (4) gives best performance where sediment is loose. The chisel bottom (10) is used where it is necessary to break up tightly packed sand. Both bottoms are easily and quickly dumped by merely pressing the trip latch (4-g) outward, thus releasing the complete valve assembly (4-b) and permitting it to swing downward on its pin. It is unnecessary to remove the bottom for either releasing or replacing the valve assembly.

The improved top (1-a), for years a popular feature of the regular-type Superior sand-pump, is also a part of the new heavy-duty pump. Its principal advantage is that it facilitates using only one line for both the sand-pump and the cleaning-out tools; and it is unnecessary to cut this line when changing over. The improved top also eliminates hazard arising from babbitting the line in the plunger extension or rope socket, an operation frequently performed on the derrick floor.

The wire line is permanently secured to the mandrel (2-h). Attaching the line to the pump is accomplished by merely removing the insert (1-d) from the improved top and the side piece (2-d) from the top of the plunger (2-a), placing the mandrel in the plunger extension, and then replacing the plunger sidepiece and the top insert.



The collar (1-f) locks the insert in the top.

Using a single line for both sand-pump and cleaning-out tools is facilitated by the improved special rope socket (18), which takes the place of a conventional rope socket in the string of tools. It is of slotted construction at the top and has a recess or seat for the same mandrel (2-h) that is used for attaching the line to the sand-pump.

Drop-Forged Digging Chain Is Used on Two Buckeye Units

The digging chain takes a lot of punishment on chain-and-bucket type trench excavators. To give still longer life and greater strength to this vital part, the Buckeye Traction Ditcher Co., Findlay, Ohio, is now equipping its Models 120 and 160 with a chain built up from drop-forged links with splined bushings. Of particular importance on jobs where delay in the work schedule ties up operations all down the line or results in penalties under a time-limit contract, the elimination of digging-chain breakage will be welcomed by users of trench excavating equipment.

In addition to the new drop-forged digging

chain, both the smaller Model 120 with its range of digging capacity from 16- to 30-inch trench width and to 10-foot depths, and the larger Model 160, which digs trench to 42 inches wide and 12½ feet deep, have a number of other operating advantages. One of the more important of these is the shiftable boom, which permits digging to the extreme right or left of the machine, or between.

Another feature of these Buckeye machines is their ability to dig while tractioning backward. This permits tunneling under sidewalks, digging straight down alongside building foundations, and many other time-saving operations.

Fire-Menaced Worker Whirls Self Into Protective Blanket

A fireproof blanket, so mounted that it can be wrapped tightly around one's body in a few seconds without assistance, is being marketed by Davis Emergency Equipment Co., New York, in response to demand from laboratory and industrial workers. The blanket is wound on a vertical roller, mounted on a wall or post. Should a worker's clothes catch fire, or should it be necessary for him to dash through flames to reach safety, he thrusts an arm through a catch-rope attached to the exposed edge of the blanket and, turning rapidly, wraps the blanket closely around him, thus extinguishing flames in his clothing or protecting himself from burns.

The blanket is made of fireproofed and mothproofed wool. Being 80 inches long, it will cover a large man completely. It is easily replaced on its roller and, when so mounted, takes up little room. It is suitable for extinguishing small fires by smothering them.

CLASSIFIED ADVERTISING

Patent Attorneys

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PATENT LAWYER
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LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

NEW MEXICO
State Oil and Gas Leases
Forty acres and multiples thereof at $6.00 to $30.00 per forty in the Hot Spots. Write for list. Twenty years in the business and not a complaint.
HARRY S. WRIGHT
New Mexico State Lessee, P. O. Box 347, Santa Fe, N. M., or P. O. Box 166, Council Bluffs, Iowa.

ILLINOIS 60,000 acres in and near production. Illinois Minerals Company, Cairo, Illinois.

TEXAS leases in active counties cheap. Large or small tracts for brokers and salesmen only. Write H. H. WHITE, P. O. Box 674, San Antonio, Texas.

FOR SALE—2400 acres Oil and Gas Leases Dahlgren Township Hamilton County Ill. five yr. leases rentaus paid, title certificates quick sale 50 cts. per acre. Box 612, Owensboro, Kentucky.

NEW 10-year 40-acre Oil Lease Lea County, joining Gulf Oil Corp., apprx. 1½ miles east of production in Eunice Oil Pool, only $10.00 acre. Roy G. Barton, Hobbs, New Mexico.

SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

FOR SALE—Shallow production; depth, 300 to 400 ft.; 190 acres; 30 wells; cheap. P. W. Jenson, Route No. 2, Chelsea, Okla.

WILL purchase shallow producing lease in Eastern Kansas. D. R. Moser, 323 Security Trust Bldg., Indianapolis, Indiana.

IT'S NO EXAGGERATION TO SAY That your idle funds can earn 300% or more per annum in natural Gas. It's being done here. You can own a lease and producing well for less than $1000. An income for years. I furnish the lease and drill your well in gas proven areas. Write
BUDDENBORG
Osawatomie, Kans.

ILLINOIS acreage wanted, small and large tracts around $2. an acre. Also tracts for immediate drilling regardless of cost, any State. Address Box J-660, The Oil and Gas Journal, Tulsa, Okla.

100% SHALLOW OIL CONNECTION Want party with cash for developing productive shallow leases where all oil can be sold. W. H. Haffey, 510 Wright Bldg., Oklahoma City, Okla.

320 ACRES, Crane Co., Tex., Magnolia lease, cheap in fee. Address 415 Littlefield Building, Austin, Texas.

Leases and Drilling Blocks

PARTY now conducting special geophysical exploration surveys for oil promise is often in contact with drilling block opportunities, leases, production, royalties and sometimes capital for development where favorable conditions exist. P. O. Box 364, Fort Worth, Texas.

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Inquiries solicited from corporations requiring capital for expansion or other corporate purposes.
BROWN HARTWELL COMPANY
110 East 42nd Street
New York, N. Y.

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DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Survey Service

OIL FINDING DOWSING METHOD
My deductions a practical method which picks up vibratory reactions emanating from carbo-hydrates. Physico method finds oil, locates faults. Same method discovered great East Texas field also our Watson #2 first producer Wilmington, Calif. field. Employ a man that owns producing wells. I find oil if it exists or no charge. George Miller, 1548 Post, Torrance, California.

Wanted

WANTED TO BUY
Vanadium bearing refinery soots and flue dusts including from Mexican and Venezuelan crudes. Henry Hansen, 218 Fayette,, Peoria, Illinois.

Situations Wanted

WANTED. Production Supt. and combination Tool pusher, 30 years' experience would like to make connection with Independent operator. Address Box J-641, The Oil and Gas Journal, Tulsa, Oklahoma.

SUPT. with 25 years' experience in leasing, drilling, pipe lines, production, and distribution of oil and gas, available at once. Address Box J-650, The Oil and Gas Journal, Tulsa, Oklahoma.

OFFICE MAN, bookkeeper, employed by Central Texas wholesale firm, desires position with oil company or independent operator. Address Box J-651, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER, superintendent, experienced in the design, drafting and construction of modern refining equipment including atmospheric, vacuum, pressure units, combination units and poly plants. Supervision of topping and cracking plants, grease and asphalt plants. Young man looking for a permanent connection. Can handle research problems. Address Box J-652, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM TECHNOLOGIST
Chemical Engineer
Proven Producer of results. OUTSTANDING experience in design and operation of refining equipment. Suitable for an executive place in major refining or oil producing unit. Address Box J-620, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

WANTED: Reliable and experienced Gas Lift Sales Engineer. Give complete personal record with references. Address Box J-611, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Maps

FREE COPY OIL AND GAS FIELD MAP
Of Texas, Eastern N. M., parts Southern Okla., SW Ark. and La. with every order for County Ownership or Oilfield Map. New map just out on Westmount Area in Lea Co., N. M.
Price $6.50 cloth $4.50 paper.
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth, Texas

UP-TO-DATE production maps of Kansas or Oklahoma. Oklahoma 4 by 6 ft. on paper $12—cloth $15. Kansas 4 by 8 ft. on paper $16—cloth $20. Also smaller sizes 28" by 36"—$4 and $6.
NICHOLS & PRATT MAP CO.
P. O. Box 2192
Tulsa, Okla.

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Tulsa, Oklahoma.

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Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

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Oil and Gas Royalty in the Illinois Basin of West Kentucky.
One-eighth of all oil and gas under 8,000 acres, or more than 12 square miles either as a whole or in part. Located in Hancock County, Kentucky, between Indian Creek and Hawesville faults with eight producing oil and gas formations known to exist. Five of which are producing on four sides of this property. Gas now being produced and marketed from shallow sands. A series of deep wells to be drilled on this property with two drilling outfits now on same and ready to start operations. A gas field producing for more than 40 years from formations 400 feet below the McClosky formation is located 3½ miles east of this property.
For information address royalty owner,
BOX 230, OWENSBORO, KENTUCKY
PHONE 145.
All deals direct with owner, no brokers or exchanges.

ROYALTIES PURCHASING TRUST, LTD., Moorgate Hall, Moorgate London E. C. 2., England, are buyers of producing oil royalties.

Mailing Lists

ROYALTY Lists. Unit Owners Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

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FOR SALE: At Oklahoma City 1—10,000 Barrel Parkersburg knocked down bolted steel tank. I.T.I.O., Bartlesville, Oklahoma.

FOR SALE

1—Star Drilling Machine with 50 h.p. Hercules motor, all mounted on Caterpillar Traction. 20,000 feet 4" seamless drill pipe with tool joints to single. We have a complete line of casing, line pipe and drilling machinery. Also have racked in Kansas 25,000 feet 8" plain end line pipe suitable for high pressure gas or oil line. Wire, phone or write to

Louisiana Iron & Supply Co.
Shreveport, Louisiana

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30	7 Lines	$2.45	$4.20	$5.95	$7.70
4 Lines	1.40	2.40	3.40	4.40	8 Lines	2.80	4.80	6.80	8.80
5 Lines	1.75	3.00	4.25	5.50	9 Lines	3.15	5.40	7.65	9.90
6 Lines	2.10	3.60	5.10	6.60	10 Lines	3.50	6.00	8.50	11.00

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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

CLASSIFIED ADVERTISING

For Sale—Equipment **For Sale—Equipment** **For Sale—Equipment** **For Sale—Equipment**

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75,000 ft.—2½" line pipe-T&C—5.75 lbs.
100,000 ft.—4" line pipe-T&C—10.79 lbs.
30,000 ft.—6" line pipe-T&C—24 lbs.
100,000 ft.—6" line pipe-T&C—19 lbs.
150—80,000-bbl. tanks—quoted—"As is and where is," cut down and loaded on car; or reerected on customers' grade any location

COMPLETE STOCK OF REFINERY EQUIPMENT — SEND US YOUR INQUIRIES

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second
Kansas City, Kans.

J. O. Isaacks
Hays, Kansas

Robt. W. Duden
2100 S. Union
Tulsa, Oklahoma

FOR SALE—1 Model KS-6-DHK Cardwell Oilwell servicing winch unit, mounted on Mack Truck. Can be inspected O.C. garage. Operating condition now. I.T.I.O., Bartlesville, Oklahoma.

1—Gasoline powered rotary rig consisting of: 2—125 HP Waukesha engines with reduction gears, 1—Reverse clutch, 1—3 speed drawworks, 1—6x12 Gardner-Denver pump, 1—96' Emsco steel derrick, 1—17" Oil Well rotary, 1—48" Boykin traveling block, 1—Boykin crown block, 1—Steel tool house, 1—clothes house, 1—Kohler light plant with house, 1—100 bbl. water tank and 1,350' 4" drill pipe.

1—Portable Rig, Rig #447 complete with 180 HP Waukesha-Hesselman engines, slush pump and all equipment including 3,200 feet 4½" pipe.

1—6,000 foot Diesel electrical-mechanical rig, complete and in excellent condition.

K. S. RICHARDS
P.O. Box 830 Phone 2-1161 Ft. Worth, Tex.

FOR SALE: At our Oklahoma City Warehouse Model D48 Muskogee Iron Works long line well servicing unit powered by HXE Hercules engines mounted on No. 55 truck. I.T.I.O., Bartlesville, Oklahoma.

FOR quick sale, a bargain in two Lufkin 6½" pumping units complete. Also other oil field equipment. P. C. Wade, P O. Box 1986, Houston, Texas. Telephone Hadley 6544.

FOR SALE

Over 75,000 feet 10¾" OD Line Pipe. Cleaned. Stacked Walton, Indiana. Priced for quick sale.

STANDARD OIL FIELD SUPPLY CO.
P. O. Box 863 Houston, Texas

REPRESSURING UNIT

1—80 H. P. Direct driven two stage Bessemer with 10½ x 20 and 5¼ x 20 compressor cylinders, for sale. OTHA H. GRIMES, Box 327, Tulsa, Oklahoma.

---

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.

Terms to suit.

CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE. Several sets reconditioned type 29 rams for 9⅝" OD Shaffer control gate. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE — MAGNETOMETER—Like new—Cost nearly $1,000.00, will sacrifice for $250.00 Cash or terms to responsible parties. B. H. Hilburn, Gulf States Building, Dallas, Texas.

VIKING 4", 250# pressure rotary pump and Foote reducer ready for connection to engine. Like New $350.00. Worthington 4", 200# pressure rotary, only $275.00.

CORKEN
206 E. Grand, Oklahoma City, Okla.

WHAT ABOUT YOUR DECEMBER 31st INVENTORY?

Will it reflect a lot of idle equipment—equipment that has served its usefulness to your company?

Cash buyers are looking for used equipment in good condition and will pay a fair price. Allow us to call attention to your idle pieces. Our publication, devoted to oil men, enables us to serve you more efficiently than any other medium.

A small ad in these columns will contact prospective buyers at a trivial cost.

Classified Department.

DISMANTLING GASOLINE PLANT

Engines, Compressors, Storage Tanks, Regulators, Meters, Pumps, Buildings, etc.

Will sell plant complete or individual items.

Also complete stock of Line Pipe and Casing on hand.

Wire, phone, write

PRODUCERS PIPE & SUPPLY CO.
Tulsa, Oklahoma
Box 1814 Phone 2-1188; L.D. 501

ONE Power Driven Rig Complete: Consisting of 1—Wilson Giant Draw Works w/ 1—7¼ x 10" Type FXK Gardner-Denver Power Pump w/ Air Chamber, Powered by 2— Type PA 100 HP International Motors, 2750' of 4½" OD Acme Full Hole Drill Pipe w/ Tools, Practically New. The Globe Supply Company, Box 761, Shreveport, Louisiana.

FOR SALE: Oklahoma City — Approximately 2000' of new 3½" OD 13.3# seamless steel drill pipe less couplings and new Byron Jackson Hopkins anti-friction API non-full hole tool joints. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE: At Oklahoma City 10 United Iron Works conical exhaust pots cheap. I. T. I. O., Bartlesville, Oklahoma.

GUARANTEED EQUIPMENT

Bargain Prices: 120 H. P. Tips Oil Engine-Ideal Alternator Generating Set, 440-220 Volt; 85 HP. Bessemer Oil Engine; 50 HP. Worthington Diesel; 40 Tips Convertible Engine. Write TIPS ENGINE WORKS, Austin, Texas.

SECTIONAL STEEL BUILDINGS FOR SALE: 1—30 x 10 x 60 standing; 1—20 x 8 x 128 K.D. Oklahoma City; 1—24 x 8 x 106 K.D. Seminole. Condition O.K. Inspection invited. I. T. I. O., Bartlesville.

If we do not maintain a classification exactly suited to the type of advertisement you wish to run, we shall be glad to create a fitting one.

Classified Department

Equipment Wanted

WANTED: 2000—9⅝" OD Field End Colona Casing Protectors. I.T.I.O. Purchasing Dept., Bartlesville, Oklahoma.

WANT 20 to 24-foot all steel band wheel power. Also 35 H.P. Superior. Give condition, location, and price. Box 57, Chetopa, Kansas.

Crude Oil Prices

(Continued from Page 112)

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Frannie, light, Wyo. (Oct. 11, 1938)† .55
Frannie, heavy, Wyo. (Oct. 11, 1938)† .42
Hamilton dome, Wyo. (Oct. 11, 1938)† .35
Midway, Wyo. (Oct. 11, 1938)† See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)† .646
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Canon City, Colo. (Oct. 11, 1938)‡ .90
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Cat Creek, Mont. (Oct. 11, 1938)‡ 1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡ .98
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Lea County, N. M. See West Texas gravity schedule‡
Artesia, Jackson and Maljamar See gravity table‡
Fort Collins and Wellington, Colo. See gravity table‡
Eddy County, N. M. (October 11, 1938)¶ .77

•Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. ¶Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crude start at below 29 degrees, 86 cents, 2 cents spread to 40 and over at $1.10. Salt Creek crude excepting Tensleep, takes Standard Oil Co. of Indiana Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective October 11, discontinued posting prices in Greybull-Torchlight, Wyo., and Hogback and Hospah, N. M.

West Texas

See gravity table.
Pecos County (Oct. 11, 1938)• .... $ .78
Pecos shallow (Oct. 11, 1938)† .... .65

•Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Eastern States

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO (Effective September 1, 1938)
Bradford, Pa. $1.68
Allegany, N. Y. 1.68

SOUTH PENN OIL CO. (Effective September 1, 1938)
Pennsylvania Grade Oil in National Transit Lines (Bradford field) .. $1.68
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.34
Pennsylvania Grade Oil in Eureka Pipe Line lines 1.28
Pennsylvania Grade Oil in Buckeye Pipe Line lines 1.18
Corning Grade Oil in Buckeye Pipe Line Co. line (Oct. 18, 1938) .... .97

PENNZOIL CO.
Group A $1.61
Group B 1.60
Group C 1.59
Group D 1.58
Group E 1.56

PURE OIL CO. (Effective September 1, 1938)
West Virginia $1.28

Canada

Ontario (Oct. 25, 1938)•
Petrolia $1.90
Oil Springs 1.97

TURNER VALLEY (January 5, 1938, by Imperial Oil, Ltd.)
Clear naphtha and discolored naphtha, 65 gravity and higher $2.14
Discolored naphtha and crude oil, 40-40.9 gravity 1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity 1.62
These prices f.o.b. producers field tankage.

•Imperial Oil, Ltd.

Forest City Basin and Western Kentucky Maps

New maps of two areas of considerable current interest to oil men, the Forest City basin of Missouri, Kansas and Iowa, and the Western Kentucky area, have been completed recently by E. C. Jacobson, Tulsa cartographer and maker of official nomenclature maps.

The Forest City basin map shows a structural high similar to that of Illinois, major companies leasing in the basin, location of H. V. Elwell's wildcat near Milan, Mo., oil and gas fields in color with official field names, dry holes, elevations, and depths. The map is sectionized and shows counties and county seats. Northwest Missouri and adjacent sectors of Kansas, Nebraska and Iowa are shown on the map, which is 36 inches by 42 inches in size, scale 1 inch to 6 miles.

The Western Kentucky map also includes adjacent sectors of Indiana, Illinois, Missouri and Tennessee. It shows geological contours on top of Upper Devonian black shale in Kentucky; the lower part of Illinois basin geological contours on base of the Pennsylvanian; oil and gas pools in color, official names, dry holes, elevations, depths, counties and county seats and sections, except in Kentucky. The size is 26 inches by 41 inches, drawn to scale 1 inch to 5½ miles.

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